

AUGUST 1917 ~ No 140

Monthly

A Reference for Buyers

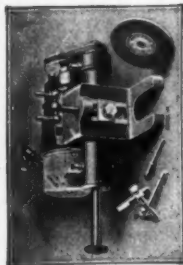
HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

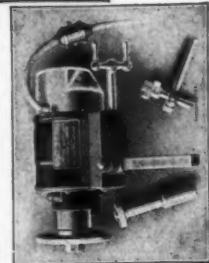
Published by
A·H·HITCHCOCK
1220-1235 Caxton Building
Chicago

HISEY Electric Drills and Grinders

Most complete line of
Portable Electric Tools



Combination Internal and External Grinder
Two Sizes: $\frac{1}{4}$ and $\frac{1}{2}$ Horse Power

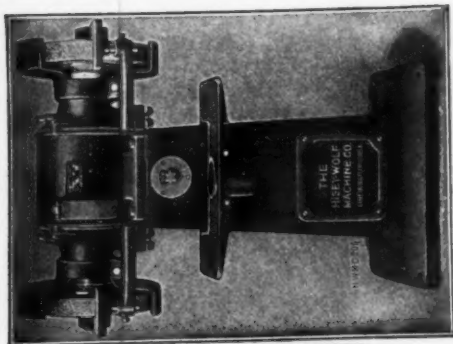


Tool Post Grinder
Ten Styles and Sizes



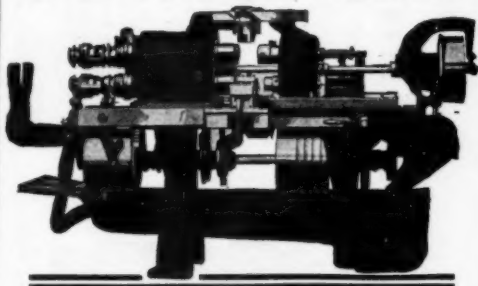
"Hisey" Hand Drill
Eight Styles and Speeds
Write for catalog HH

The Hisey-Wolf Machine Co.
Cincinnati, Ohio
New York Office, 50 Church St.



Ball Bearing Floor Grinder
Also made with Base for Bench Mounting
Five Sizes: $\frac{1}{2}$ to 5 Horse Power

Adaptability The ACME Method



Ordinarily screw machine work requiring cross milling, slabbing, slotting, etc., has to be finished on a special machine.

With Acme Automatics this class of work may be finished complete before leaving the machine. Hence, the Acme Method saves both time and cost of rehandling, and adds nothing to the time necessary for finishing the piece.

This is only one example of the Adaptability of the Acme Automatic for handling difficult screw machine work.

Anything up to 3 $\frac{3}{4}$ -inch Diameter.

Ask for Acme Method Book "C."

THE NATIONAL ACME COMPANY

NEW ENGLAND PLANT
WINDSOR, VT.

Cleveland, O.

CANADIAN SCREW PLANT
MONTREAL, P. Q.

Branch Offices:

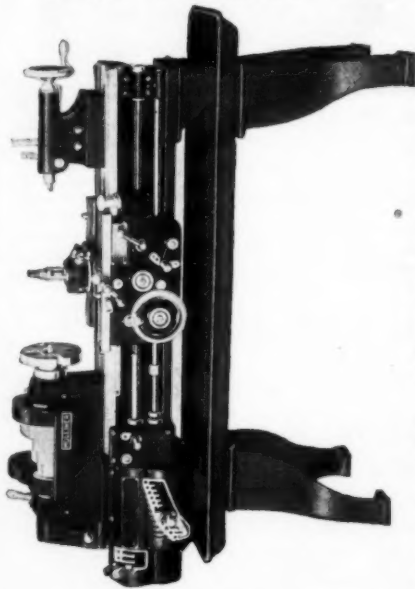
NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio

12 and 14-Inch Mulliner Quick Change Lathes

Every feature in these lathes, down to the smallest detail, is the result of the most careful study and exhaustive tests, resulting in tools of unusual quality. Users are more than satisfied with them; they are enthusiastic over their accuracy, power and convenience of operation.

We have a sheet of specifications which will interest every one who likes to know about good tools. May we send it to you?

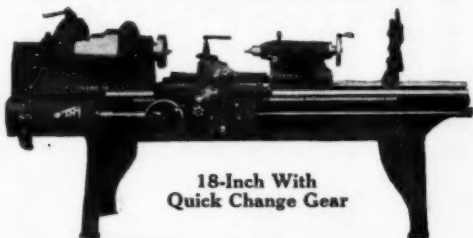


MULLINER-ENLUND TOOL CO., Inc.,

Syracuse, N. Y.

The Super-Quality "Chard"

For Hard-to-Satisfy Users



18-Inch With
Quick Change Gear

"Chard" Super-Quality Lathes are made in 16", 18", 20", 24" and 28", semi and quick change, with four-step back gear and three-step double back gear.

No, we do not believe that hard-to-satisfy users are cranks, for we are that way ourselves. We believe, rather, that they know the economic value of the best tools and that they are all the more appreciative when they get what they want.

We are building the "Chard" for just that kind of people, and our practical experience of over 35 years in the making of high-grade lathes has given us the "know how." If it hasn't, it ought to. But we are willing for the "Chard" to speak for itself.

If you insist upon the best there is in lathes, we shall be delighted to have you investigate the "Chard"

Chard Lathe Company

New Castle, Ind.

DOMESTIC DISTRIBUTORS

THE F. O. STALLMAN SUPPLY CO., San Francisco, Cal.
VONNEGUT MACHINERY CO., Indianapolis, Ind.
ENGLISH & MILLER MACHINERY CO., Detroit, Mich.
OGDEN R. ADAMS, Rochester, N. Y.
HILL, CLARKE & CO., Chicago, Ill.
THE W. M. PATTISON SUPPLY CO., Cleveland, Ohio.
J. S. MILLER MACHINERY CO., Pittsburgh, Pa.
MONARCH MACHINERY CO., Philadelphia, Pa.
PATTERSON TOOL & SUPPLY CO., Dayton, Ohio.

Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes.** Built in four sizes and in all styles and with any attachments desired.

*Sold by a leading Machinery Dealer
in every machinery center.*

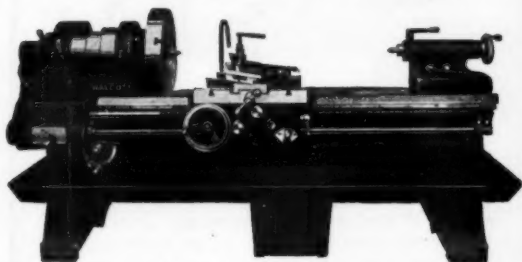


The Monarch Machine Tool Co., Sidney, Ohio

14, 16, 18, 20, 26 and 28 Inch

Walcott Lathes

For Tool Room and Factory



Walcott 20" Lathe with Quick Change Gear Box, 3-Step Cone and Double Back Gear, Oil Pan and Pump

Walcott Lathes are powerful, convenient, safe, and the very embodiment of accuracy.

They also contain many excellent features that are not found in other high-grade lathes.

Especial attention has been given to those parts which usually show the first wear in a lathe, with the result that we believe we have increased the wearing qualities of Walcotts over any other lathes made.

We furnish oil pan and pump equipment with all sizes; square tool post on saddle and hexagon tool post on saddle for all sizes; hand feed turret on bed of 14 and 16 inch lathes, and power feed on bed of the larger sizes.

*We invite your most careful investigation.
What size do you need now? Let's get together.*

Walcott Lathe Co.

Jackson, Michigan

SIDNEY High Duty Lathes

Sturdy—Convenient—Accurate



The Three Sizes Are 15', 17' and 19' Swing

These Lathes are built with single or double back gear, plain or quick change gear, and with any length bed from 6 ft. up. They embody the latest and best in machine shop practice, and give full measure of satisfactory service. Description and full information sent on request.

THE SIDNEY TOOL CO., SIDNEY, OHIO

Cleveland 16" Quick-Change Lathes



**3-Step Cone and
Double Back Gears**

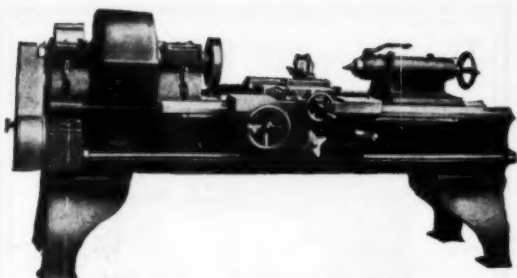
or

**4-Step Cone and
Single Back Gears**

We guarantee them to reduce 50-point carbon steel $1\frac{1}{4}$ inches at $1/16$ feed. They are heavy, accurate, durable, convenient and beautifully finished. They are built for business.

Write for the full details of construction

The Cleveland Machinery & Supply Co.
Cleveland, Ohio



In Stock for Immediate Shipment

50 New Simplex Single Purpose Heavy Duty Lathes Back Geared

Specifications

Length of bed, 8 ft.
 Distance between centers, 34 in.
 Height from floor to center, 40 in.
 Swing over vees, 16 in.
 Swing over slide, 10 in.
 Front spindle bearing, $4\frac{1}{2}$ in. dia.,
 $8\frac{1}{2}$ in. long.
 Rear spindle bearing, $3\frac{1}{2}$ in. dia.,
 $7\frac{1}{2}$ in. long.
 Single pulley drive, size drive pulley
 on head-stock 12 in. dia. for
 six-inch belt.
 Tailstock spindle, $3\frac{1}{2}$ in. dia., 6 in.
 travel.
 No. 5 Morse Taper center.
 Tool slide, $11\frac{3}{4}$ in. wide.
 Carriage bearings on vees, 30 in.
 Ring oiling bearing in headstock.
 Longitudinal power feed with
 single automatic stop.

Silent chain drive to feed.
 With slip gears for changing feed.
 Feeds, .020 in., .040 in., .060 in.,
 .080 in., .100 in.
 Gear ratio, $6\frac{1}{2}$: 1.
 Face of gears, $2\frac{3}{4}$ in., 6-pitch.
 Two-speed countershaft.
 Apron shrouded box type.
 All gears steel.
 Shipping weight, approximately
 4100 pounds.

Equipment

Two No. 5 Morse taper Centers.
 One Plain or European Tool Post.
 Two-speed heavy countershaft.

Countershafts

Main drive pulley, 12 in.x6 in.
 Two friction pulleys, 14 in.x5 in.
 10 in. Drop Hangers, Shaft 1 11/16
 in. diameter.

We have sold a considerable number of these lathes to
 Munition Manufacturers making High Explosive and Shrap-
 nel Shells.

They have also done excellent work in Heavy Plain
 Turning and Boring.

Price, each, for Domestic Shipment \$645.

Price, each, for Export Shipment \$670.

L. R. Meisenhelter Machinery Co.

N. E. Cor. 4th and Arch Sts.,

Philadelphia, Pa.

The Atlas 20" Engine Lathe



**Quick Change, Double Back Geared
Made with 8, 10 and 12 ft. Beds**

Like Atlas of old, who was said to have supported the pillars of heaven on his shoulders, the Atlas Lathe is built to bear the burden of heavy work. It is powerful and rigid, and is especially designed for long-continued accuracy. Get in touch with us—you'll be glad you did.

The Taylor Machine Co., Cleveland, Ohio

"FILSMITH" 13-Inch Engine Lathe

Has Many New and Practical Features



**3-Step Cone
Double Back Gears
Strong for Its Weight**

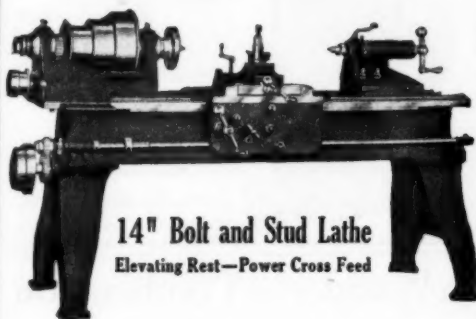
A high-grade tool, combining power, accuracy and convenience in exceptional degree, and in a manner that practical mechanics appreciate. Description and the moderate price are yours for a postal.

PHILIP SMITH MFG. CO., SIDNEY, O.

PRYIBIL

A Machine You Can Have Right Now

With Compound Rest



14" Bolt and Stud Lathe
Elevating Rest—Power Cross Feed

Why use an Engine Lathe for Plain Turning?

A Simple High Grade Stud Lathe can be bought for less money.

Why pay for useless parts?

Get your order in early

P. Pryibil Machine Company

Established 1862

New York City, U. S. A.



"Dalton Six"

To the man who depends upon "man power" for operation no machine manufactured is more complete or easier to pump than the

"Dalton Six"

mounted with our patented ball bearing foot power.

Regardless of the strain upon the machine, the shaft bearings will always remain true and in line.

Can be supplied with all the attachments for our power driven lathe.

Bulletin B-603 Gives Complete Specifications

Dalton Manufacturing Corp.

Successors To

Dalton Machine Co., Inc.

1911 Park Ave., New York, U. S. A.

A Wonderful Combination In Riveting



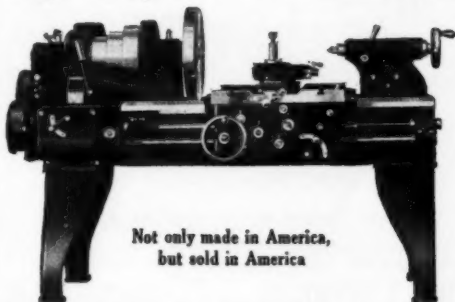
- Speed:** one rivet per second.
- Uniformity:** each rivet headed with same degree of tightness or looseness as desired.
- Finish:** perfectly formed rivet heads, highly polished surface, no hammer or tool marks shown.

GRANT Noiseless Rivet Spinning Machines, are the only machines built that will accomplish the above.

Catalog ?

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

The "Economy" High Duty 18" D. B. G. Lathes



Not only made in America,
but sold in America

We are creating an American market for "Economy" Lathes—that's why we have not accepted the easy money of foreign orders for over two years.

We do not believe there is a lathe that is better designed or more carefully built; and as we have a hobby for keeping down overhead, our costs go into our products.

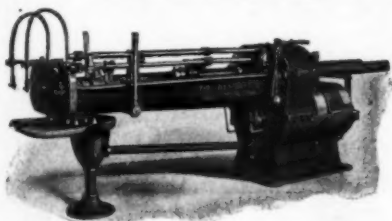
It is because we know our lathes, and especially their quality-for-the-price, that we are building our reputation where our permanent business is coming from—where the sheer merit of "Economy" products will establish a permanent demand.

We cannot take immediate care of new orders now, although we have enlarged our plant and added greatly to our capacity. But if you can anticipate your lathe needs, you will find the "Economy" well worth advance investigation.

Delighted to have you get in touch with us

Rockford Lathe & Drill Co.
1827 Fourteenth Ave., Rockford, Ill.

Broaching Machines And Broaching Tools

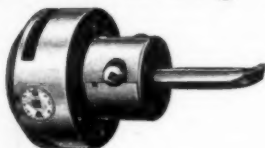


Our Famous Double Machine

The Most Complete Line In The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

THE J. N. LAPOINTE CO., - - New London, Conn.

Dependable Boring Heads



Holes in jigs, tools and fixtures are now bored accurately to size by clamping the tool or fixture on the milling machine table, and rotating the boring tool in the Casler Offset Boring Head.

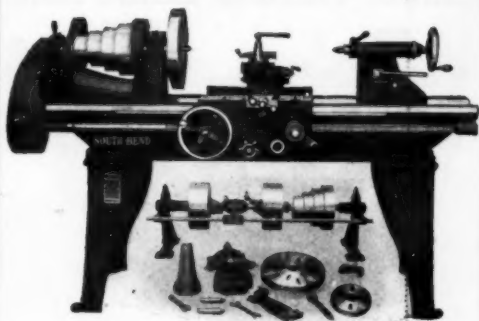
The new way enables you to save time and make use of the vertical and horizontal adjustments provided on the machine.

The Casler Offset Boring Head allows quick and accurate adjustment of the boring tool. Order now, and save money on your tools and fixtures.

Catalogue C tells the story

MARVIN & CASLER CO., Canastota, N. Y.

South Bend Lathe



16 in. x 6 ft. Screw Cutting Engine Lathe

South Bend Lathes have been on the market eleven years. Dealers in every large city.

Swing Over Bed, Inches	Length of Bed, Feet	Dist. Btw. Centers, Inches	Hole Thru Spindle, Inches	Approx. Weight on Skids	Code	Price
13 $\frac{1}{4}$	5	32	1	1,000	Hasen	\$272
15 $\frac{1}{4}$	6	40	1 $\frac{1}{8}$	1,425	Jacin	352
16 $\frac{1}{4}$	6	36	1 $\frac{1}{8}$	1,700	Juddo	432
18 $\frac{1}{4}$	8	57	1 $\frac{1}{8}$	1,950	Kell	566
21 $\frac{1}{4}$	10	75	1 $\frac{1}{8}$	3,300	Penti	841
24 $\frac{1}{4}$	12	95	1 $\frac{1}{8}$	4,420	Polly	1,218

Made with straight or gap bed. Price includes all the equipment shown in illustration.

GUARANTEE

Write your own guarantee—We'll abide by it

Send for free Catalog illustrating and describing entire line.

South Bend Lathe Works

Established 1906

South Bend, Ind.

East End

Partridge Reliable Small Turning Lathe Sets



You will find these are excellent small Lathes. All parts are accurately made and fitted; the bottoms are planed true with the centers. The pulleys are crowned and turned inside. Nos. 1 and 2 have cast iron bearings, and the centers are No. 1 Morse taper. Nos. 3 and 4 have babbitted bearings, and the centers are No. 2 Morse taper.

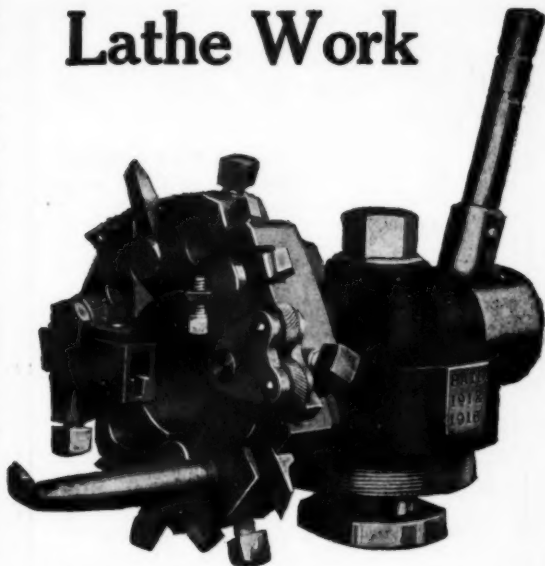
The four sizes are made to swing 6, 8, 11 and 13 inches, respectively. They are useful for the polishing of small metal parts, and wood-turning. Write for prices.



I also make Grinders, Polishers, Foot Presses, Bench Tapping Machines and Countershafts. Prices of materials are advancing—send me your orders now.

E. O. PARTRIDGE, 2041-2049 W. Lake St., CHICAGO

Lathe Work



Will show wonderful increase in your shop when you use

The Universal Turret Toolpost

Increases the output of your lathes—eliminates tool changing—FITS ANY LATHE—tools always accessible and furnished complete.

Prompt delivery—Write for particulars

Magna Machine Company

Suite 481, 50 Church St., New York

Also Builders of High Grade Special Machinery, Jigs, Tools, Gauges and Fixtures.

Expert Pattern Makers



Now Using 32

But the original test order of a prominent New England concern called for just one

Hartford Taper Gage

This inexpensive and easily applied device enables any of your workmen to detect *instantly* the slightest inaccuracy in any taper, thus greatly facilitating accurate work and saving much valuable time.

This Accurate Gage

is yours at a cost so small that you simply cannot afford to be without one or more. Send *your* test order in *now*.

Hartford Special Machinery Co.

285 Homestead Ave., Hartford, Conn.

YOU Want Tool Holders that have MADE GOOD

Armstrong Tool Holders

Were Awarded The

Grand Prize

The Highest Possible Award at the Panama-Pacific International Exposition—1915



They Always Make Good

They Are Used in Most of the Big Machine Shops of the World

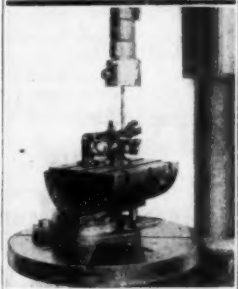
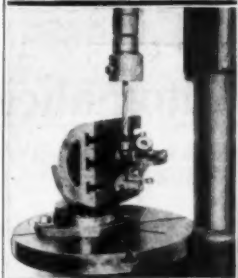
Send for Catalog

Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.





Universal Angle Plate

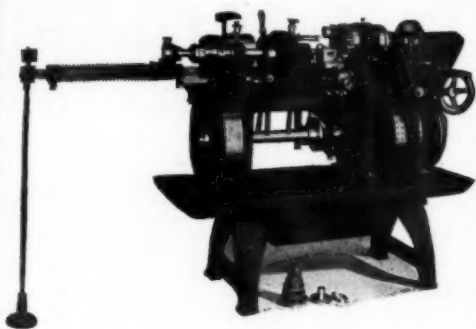
For boring or grinding at any angle. In the piece shown, 12 holes were bored at different angles without removing it from the plate. Formed cutters can be ground on the plate by adding centers to platen, and an endless variety of work machined that requires accurate angular adjustment. Won't this save trouble and time, and good hard cash in your tool room, or anywhere that you can use it?

The angle plate swivels on the accurately graduated base through a complete circle, and tilts to 90 degrees, making available any desired angle, which, by means of the vernier attachment reading to five minutes, may be measured with great exactness for fine work. It displaces inaccurate, unreliable, make-shift rigs, and is a joy forever to every good mechanic who uses it.

Four sizes: 4"x6", 6"x8", 8"x10" and 12"x18". The 12x18 is furnished with worm adjustment, and the 8 x 10 either with or without that feature. Its rigidity and dependability in service are secured by careful designing and thoroughly good workmanship.

*The price is no more
than you will gladly
pay. Write us for it.*

**Boston Scale
and Machine Co.**
381-389 Congress St.
Boston, Mass., U. S. A.



Chicago Automatics

No. 1 $\frac{3}{4}$ in. Capacity

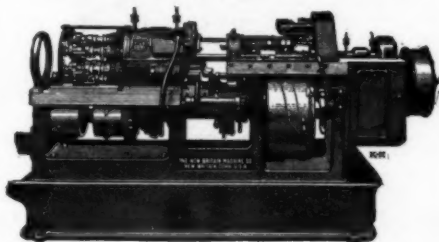
No. 2 $1\frac{1}{4}$ in. Capacity

No. 4 2 in. Capacity

For Sale By The
John Macnab Machinery Company
90 West St., New York City

The "New Britain" Six

A Six-Spindle Automatic Screw Machine



The "Six Spindle" Automatic finishes complete on the bar work ordinarily necessitating rehandling when produced on machines of older type.

It increases productions on the common run of work 50% to 200% by splitting the longer operations.

It will produce two or three pieces at each indexing on work of simple character.

With a 20% to 50% advantage in tooling capacity over older types of machines; with a massive and rigid construction which permits heavier cuts and coarser feeds; and with numerous exclusive features for saving time, increasing output, and economizing power consumption, the "New Britain" Six is just the kind of a cost reducer and production stimulator that should not be overlooked in these days of labor shortage and advancing wages.

Let us submit production estimate on your work

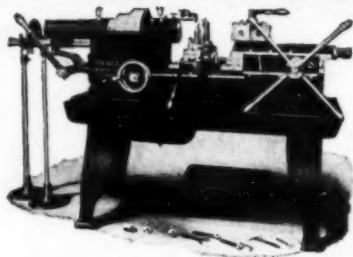


**THE
New Britain Machine
Company**

New Britain, Conn., U.S.A.



"Widest Range Screw Machine"

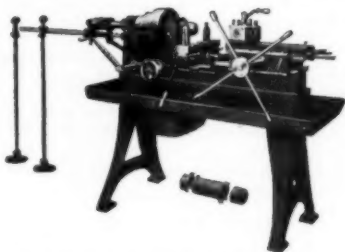


The 1-in. Pierce makes enviable records in the rapid turning of bar stock. It is accurate, simple and powerful. Capacity is 1 1/16-in. diam. by 8-in. long. Let us send you full details.

Pierce Machine Tool Company

617 W. Jackson Blvd., Chicago, Ill.

Turret Lathes and Screw Machines

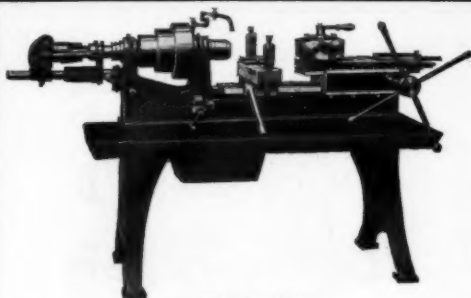


built and designed to give maximum permanent accuracy and efficiency. Reasonably priced.

Himoff Machine Co., Inc.

134 Mott Street,

New York, U. S. A.



MODEL "D"

Turret Lathes and Screw Machines

Now Ready for Delivery

**Designed for Rapid Manufacturing of
Parts Requiring Several Operations**

MADE IN FOUR SIZES:

- No. 2 { $1\frac{1}{8}$ " Wire Feed Capacity, Plain Head
 { $1\frac{3}{8}$ " Hole Through Spindle.
- No. 3 { $1\frac{5}{8}$ " Wire Feed Capacity, Plain Head
 { $1\frac{3}{4}$ " Hole Through Spindle.
- No. 4 { $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{1}{8}$ " Hole Through Spindle.
- No. 5 { $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{3}{8}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.
Mechanically Perfect and Fully Guaranteed.**

Manufactured By

Smurr & Kamen Company
313 N. Whipple St., Chicago, Ill.

Abbott Steel Bearing Balls

High Grade—Highly Finished

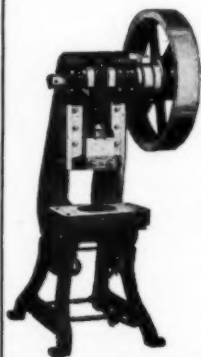


We shall be glad to have your inquiries and make estimates

The Abbott Ball Company
Elmwood District, Hartford, Conn.



Here Is A Press



With Plenty of Steam
Back of **THE PUNCH**

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and
inclinable types. Their great
power backed by rigid design
enable them to do the work
you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.



S. & S. American Gage Standards

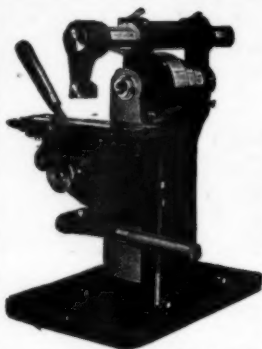
**One One Hundred Thousandth Inch
Accuracy Guaranteed**

**Made in the United States by
Experts of Life-Long Experience**

See double page in this issue

**Cut shows that S. & S. Gage Standards
are self checking.**

Schuchardt & Schutte
West Street Building, New York



Burke's No. 3 Bench Millers

Are Seasoned Tools

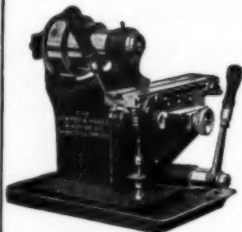
Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.; traverse feed, $3\frac{1}{2}$ in.; vertical motion of knee, 8 $\frac{1}{2}$ in.; table surface, $3\frac{1}{2}$ x 12 inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

This Bench Miller



Is well designed and well built and is a machine that will give you good and permanent service. Can furnish floor column if required.

Send for circular

The Carter & Hakes Machine Co.
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.
WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis.

"Whitney" Hand Miller

THOUSANDS IN USE



The Milling Machine with the SLIDING HEAD. No other design equals it for speed, accuracy, economy, and convenience. Useful every day in the year on countless operations.

Prompt Deliveries

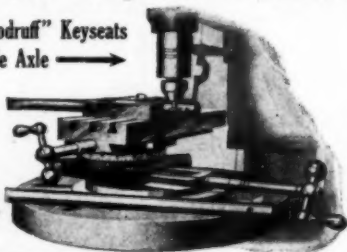
The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys—Hand Milling Machines

Mills On Any Drill Press

Cutting "Woodruff" Keyseats
In Automobile Axle →

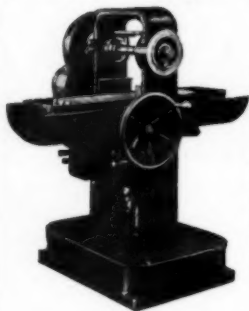
For the
Garage
Diemaker
Repair Shop
Patternmaker



The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

Hinckley Machine Works, HINCKLEY, ILL.

Briggs High Duty Miller



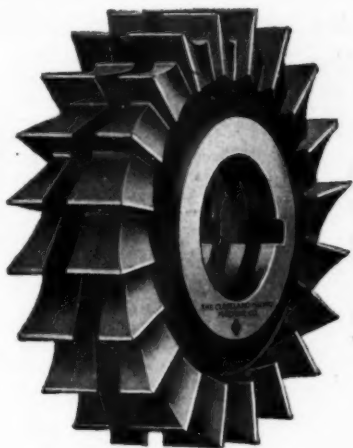
For Form and
Gang Milling

of steel parts for guns, automobiles, etc. Its use in tool room or machine shop means bed-rock economy.

Designed and built especially for rapid and heavy work, it takes wide cuts in hard steel to the full power of a 3½-in. double belt without any chatter.

*Designed on original lines
Send for description today*

GOOLEY & EDLUND, Inc., Cortland, N. Y.



Milling Cutters

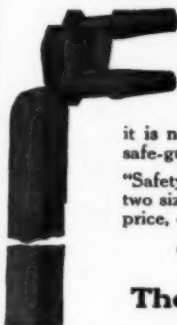
Of Every Description

Formed Cutters a specialty.
Standard Milling Cutters
carried in stock.

Cleveland Milling Machine Co.
Cleveland, Ohio

When the Man Is Mutilated

"Safety First" Belt Sticks Can't Save Him



THEREFORE:—Send in your order now for a few of these safety appliances and protect your men while putting belts on moving pulleys. Besides being a matter of elemental prudence, it is now a pressing patriotic duty to safe-guard your employees.

"Safety First" Belt Sticks are made in two sizes, 1 to 4 in. and 4 to 6 in., at one price, only \$1.25 each or \$12 a dozen.

*Order NOW and PREVENT
that costly accident*

The Ready Tool Co.
Bridgeport, Conn.

Gwilliam Service

Ball and Roller Bearings

Annular—Single and Double Row
Ball Thrust—All Types Taper Roller—Standard
Roller Thrust—Collar Type Pressed Steel—All Types

Automobile, Motor Boat and Truck Bearings Steel Balls

Sole Agents for the U. S. of
The Bowden Patent Wire Mechanism
for the Transmission of Reciprocating Motion Through
a Flexible and Tortuous Route.

Send for circular

The Gwilliam Company

Engineers and Specialists

**NEW YORK, 253 W. 58th St. (at Broadway)
PHILADELPHIA, 1314 Arch St.**

ILLINOIS TOOLS



IT will be to your advantage to confer with our engineering department, no matter what are your Hob and Cutter requirements.

Standard tools in stock.
Prompt delivery on specials.

*Write or Wire
for Quotations*

ILLINOIS TOOL WORKS
CHICAGO, U.S.A.



When the Army Takes Your Men

Canton Cranes Will Serve You Well



Lift and lug all kinds of machinery and castings. Cantons do the work of from 6 to 10 men *in perfect safety*. They save time, money, fingers, toes and temper.

**"The Handiest Tool
In the Shop"**

affords you a choice of many sizes. Booklet E-8 tells you all about them.

A 30-day trial for the asking

CANTON FOUNDRY & MCH. CO., Canton, O.

ELECTRIC EUCLID HOISTS

Euclid Efficiency

Euclid and Efficiency are synonymous to users of Euclid Hoists.

In whatever capacity these hoists are used they perform their services with the utmost efficiency and give unlimited satisfaction.

We know they will solve your hoist problems. Write and get the facts.

The Euclid Crane & Hoist Co.

Dept. C

EUCLID, OHIO, U. S. A.



Woodruff Keyseat Cutters

We recut Woodruff Keyseat Cutters and alter each dimension necessary to make the next smaller standard size, without annealing, so the shanks will remain standard.

The Cost is 30% of the Original List Price

And We Pay Express One Way

In appearance, workmanship and cutting quality, all cutters recut by us are guaranteed to equal new ones.

Peninsular Tool Salvage Co.

Detroit,

Michigan



Specializing In Manufacturing Means Reduced Costs

In the *Avey* Ball Bearing
Drilling Machines

we offer sizes, speeds and capacities to suit each specific job.

High Speeds—Clean Holes



Get the Right Machine

Our No. 3 machine provides maximum speeds for work up to 1½".

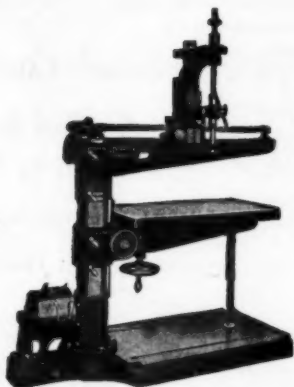
Our No. ½ machine for light work may be run at speed of 12000 r. p. m.

We have other sizes suitable for intermediate work.

Let Us Advise With
You On Your Work

The Cincinnati Pulley Machy. Co.

Cincinnati



This Taylor & Fenn 3-Foot Radial Drills Holes and Cuts Costs

If you have drilling to do up to $\frac{3}{4}$ in. in big, hard-to-handle pieces, this exceptionally handy machine can save you money. Its wide range and quick action, its convenience of adjustment, its dependable accuracy, and its low consumption of power all combine to make it a tool that lowers manufacturing costs.

We could not say beforehand just how much it would save on your work, but we do know that in some shops it has doubled and even trebled previous outputs.

*Ask us to mail you our production records
and cost comparisons—all interesting data*

The Taylor & Fenn Company
Hartford, Conn.



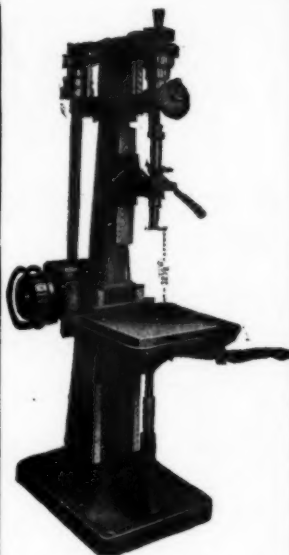
FEATURES

**Quick
Change Speed**
Change in 2 seconds

**Most
Efficient Drive**
No belt troubles

Safety First
All parts protected

**Heaviest
Drill Made**
Yet very sensitive
All Ball Bearings



We've Sold Thousands of The Sipp Quick-Change-Speed Drills

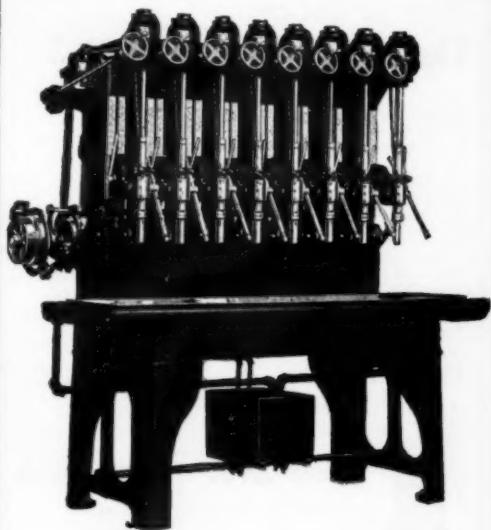
because practical men have been quick to see the merits of the unique drive and speed-changing device; the effective method of oiling and the many unusual features which combine to give it **HIGHEST EFFICIENCY.**

Write for Bulletin No. 4.

The Sipp Machine Co.

Keen St.

Paterson, N. J.



Henry & Wright Drilling Machines

—are made in 252 varieties, with one to eight spindles, to meet every possible requirement for drilling holes up to $\frac{3}{4}$ -inch. By reason of their gearless power transmission with frictionless bearings, they deliver more actual working power at the drill point than is possible with any other type of drilling machine.

Let us tell you how this works out in practice, and present you with our valuable Feed and Speed Chart.

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.

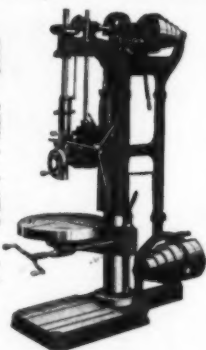
32", 36" and 42" Cleveland Drill

This modern drilling machine is simple and exceptionally rugged in construction, with the best of bearings, and carefully finished.

It is built throughout for convenience, accuracy and durability, and it maintains a rate of speed in actual drilling which insures a maximum production.

Patent geared tapping attachment, also improved motor drive, can be furnished if desired.

*Get the full description
You'll like the improvements*



The Cleveland Machinery & Supply Co.
Cleveland, Ohio



"Wear-Ever" Tap Chuck

**Saves Time and Taps
And Outwears All Others**

It saves time because it has no screws to adjust, and no time is lost in setting it for various size taps. An unskilled workman can change taps in a few seconds.

It saves taps because they always run true, rendering them much less liable to breakage.

It outwears several friction tap chucks, because it is scientifically designed and is built of *one piece* and hardened.

*Wonderfully handy; very economical.
Where shall we mail the description?*

Scully-Jones & Co.

Room 555 Railway Exchange Bldg., CHICAGO

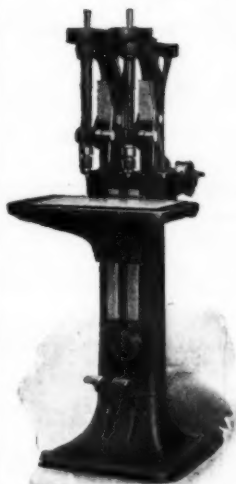
Sensitive Drilling Machines

For The

Manufacturer

Who Must Get

Big Production



Spindle Speeds
up to 10,000 R. P. M.

Bench or
Floor Type

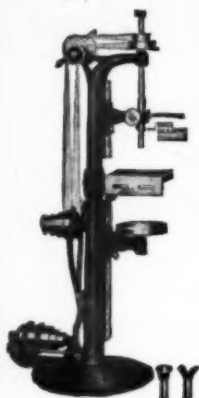
Hand or
Foot Feed

Tapping
Attachments
If Desired.

Bulletin 502 on request

Leland-Gifford Co.
Worcester, Mass., U. S. A.





Look Here, Please!

A Sensitive Drill With Six Spindle Speeds

from 600 to 2,400, with ample power for $\frac{1}{2}$ -inch drills and plenty of speed for the smallest drills.

If your Dealer doesn't have them, write us

Francis Reed Co.

43 Hammond St.
Worcester, Mass.



The Fenn Tapping Machine Saves Time and Taps

It saves time because any desired speed is obtained instantly, either forward or reverse. Every movement can be speeded to the limit. The great saving is obvious.

It saves taps, because it has a "give" to it, which relieves any undue strain on both spindle and tap.

More economical than any gear-driven machine, and immensely cheaper than hand tapping.

Write for all the facts

**Fenn Manufacturing Company
Hartford, Conn.**

Cable Address "Fenn." West. Union Code
W. L. Fenn W. A. Fenn
(Formerly of the Taylor & Fenn Co.)

**Doing
things
exactly→**

Using the drill
guide, while the
tilting table with
graduations in
degrees gives the
correct angle.



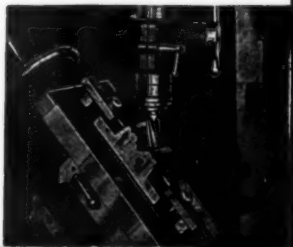
This Is Only One Of Many

accurate, time-saving stunts that are always
at the command of your machinists and tool-
makers with the Knight Milling and Drilling
Machine. No matter whether it's regular work
or a special job, a Knight will nearly always
enable you to save some valuable time. Your
choice of three sizes—large, medium and small.

Write for details of this modern cost-reducer

W. B. Knight Machinery Co.
St. Louis, Mo.

As there is a
heavy demand
for Knights, it
is well to anti-
cipate your
wants.





Burke Quality

Excels on Fine Points

Machines of Burke Quality are never built with any name cast on the frame but our own—

**BURKE
CONNEAUT
U. S. A.**

For Sale Everywhere

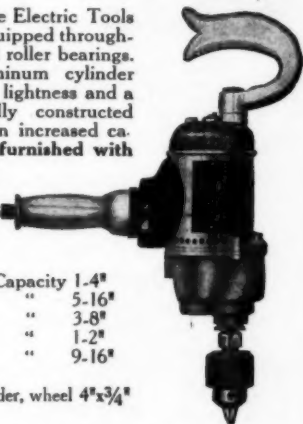
Machine Tool Makers

should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.

Thor Universal Electric Drills

Licensed Under Burke Universal Motor Patent

The only Portable Electric Tools made that are equipped through-out with ball and roller bearings. Made with aluminum cylinder insuring extreme lightness and a powerful specially constructed motor resulting in increased capacity. Can be furnished with Universal, Alternating or Direct current motor 110 or 220 volts.



000	Drilling Capacity	1-4"
00	"	5-16"
0	"	3-8"
01	"	1-2"
1	"	9-16"

No. 6 Electric Grinder, wheel 4"x3/4"

Shipped On Trial

**Independent Pneumatic
Tool Company**

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal



Prompt Shipment of Murchey Chasers

On Receipt of Order

Means much to you and to us. To you, it means the end of exasperating delays; with us, it has been a stupendous undertaking to keep pace with the demand. But "Murchey Service" still holds good.

**Murchey Collapsing Taps
and Self-Opening Dies**

are also making good, in both the quality and quantity of their production. Murchey's incomparable High-Speed Threading Tools, with our prompt delivery of Chasers, is a combination which our customers appreciate. So would you. Won't you get in touch with us?

Murchey Machine & Tool Co.,

58 Porter Street
Detroit, Mich.



You Need The "Double-Gripp" Safety Tapping Chuck



To keep your production up to top notch; and not only to KEEP it up, but to INCREASE it.

This Is The Chuck

that will reduce your tapping cost to the lowest possible figure and put it on a more profitable basis.

*Our Circular Tells How
Write for it today*

William L. Procunier
549 Washington Blvd., Chicago, U. S. A.

ONE of
the NEW

RAD- NET- ICS,



the V-Block, to be used with a magnetic chuck, as shown in the cut below.

RADNETICS are also made up as parallels, protractor-bars, taper-bars and in special shapes as required.

They grip the piece instantly and rigidly, without requiring extra current.

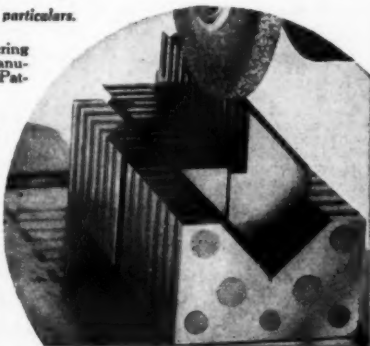
Write for full particulars.

Kar Engineering
Co., Inc., Manu-
facturer and Pat-
entee.

**Lawson &
Co., Inc.,**

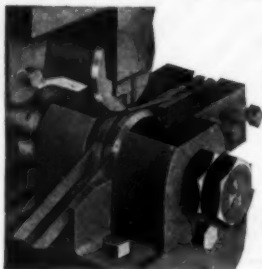
140 Cedar St.
N. Y. City,

Sole Distrib-
utor; also
Manufact-
urer and Dis-
tributor of
the Radbore
Head.



Sheet Metal Cut Mechanically

Cheaply and Without Waste



The New Gray Sheet Metal Cutter

Cuts all kinds of intricate patterns in sheet metal up to 3-16" thick at the rate of 20 to 30 inches a minute.

It doesn't spring or buckle the material, thus saving the waste that is usual with other shearing devices. It leaves the metal flat, with clean, uncrimped edges.

It insures both quantity and quality, without the waste of good material.

Pleased to explain fully and to guarantee all our claims

W. J. SAVAGE CO., Knoxville, Tenn.

Quickwork Rotary Shears

Never Fail to Decrease the Labor Costs from 25% to 50%;

Never Fail to Increase the Output;

Never Fail to Do Better Work.

Cuts straight lines as well as any other Rotary Shear, and in addition will cut the most irregular, serpentine and zig-zagged lines across the sheet with one passage of the metal; or it will cut any shape or opening in a sheet without cutting in from the side.

Has three speeds; both cutters driven and the metal is self-feeding, and comes through with smooth straight edges. Send for new catalog.



Twelve Sizes
Cutting any
thing from
the thinnest
sheets to 3"
Steel
Plates.

THE QUICKWORK COMPANY

Successor to H. Collier Smith, Detroit.

Detroit Office and Salesroom, 807-815 Scotten Avenue, Detroit, Mich.

Main Factory and Office
St. Marys, Ohio.

Send for Shear Catalog

Manufactured and For Sale By

W. C. & F. C. TUCKER, Hartford, Conn., U. S. A.

[illegible]

Shear blades have a draw-in cut with no tendency to crowd work out of shear. Pressure is directly over the cut by a rolling contact. Arm of movable blade is operated with a steel band. No springs on the machine.

Pays for Itself in Steel Saved

Peter Bros. Abrasive Cutter

IS THE BEST ANSWER to the demand for economy now heard in shops that have to cut high speed steel; tubes, rods and bars of brass, copper or aluminum; reamers, taps or drills, etc. Cuts off high speed steel as if it were wood. Doesn't draw the temper and saves grinding.

8" Size \$17.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{1}{2}$ " square.

12" Size \$50, with C. S.
Cuts up to $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



AUTOMATIC HIGH SPEED SAW

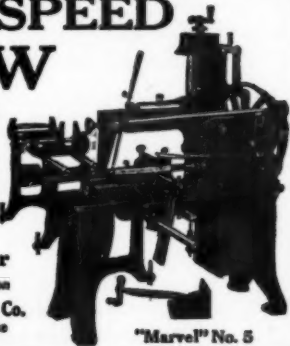
Attention is invited to the "Marvel" No. 5

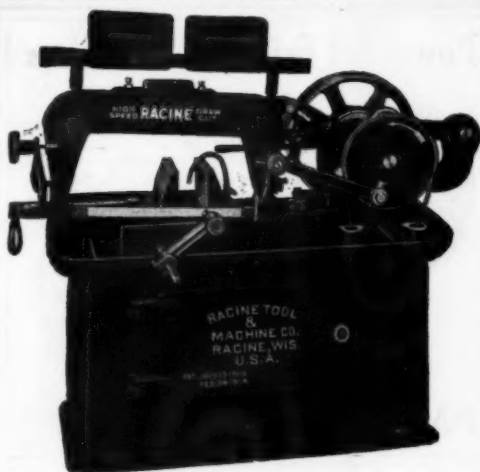
Cuts duplicate pieces faster and at less cost than any other method. Entirely automatic.

Feeds the Bar

Write for full information

Armstrong-Blum Mfg. Co.
341 N. Francisco Avenue
Chicago, Ill.





Racine High Speed Metal Cutting Machine

Eats Steel—Standard the World Over

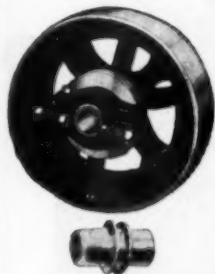
This is the only machine in the world that has an absolutely positive automatic lifting device. This feature of it is secured by patents. Its saw frame guide prevents springing. These two features combined lengthen the life of blades used on it.

Then there is the all important fact that RACINE machines minimize wastage of material, cut accurately and speedily, are easy and cheap to operate and increase production.

Investigate the particulars of our offer of a 30 days' trial before buying any other shrapnel machine.

Racine Tool & Machine Company
Racine, Wisconsin, U. S. A.

Powerful Friction Clutches



Simple, strong, compact.

For speed and heavy use.

Large diameter friction disc insures full, uniform grip.

Therefore, positive in action.

All end thrust eliminated.

Oil every second month, without removing belt.

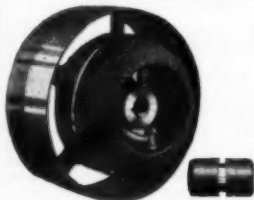
Perfect service; low cost.

Investigate these newer and better clutches

PASSMAN BROS., 30 S. Green Street
CHICAGO, ILL.

Edgemont Friction Clutches

Are Worthy of Your Consideration



Enclosed Type, Plain Oiling

Because they are simple—no springs or delicate parts.

Because they are strong—they will not break.

Because they can be relied upon to pull all that the belt will.

Because they have stood the test of long and hard usage. The leading machine tool builders of the country (names on request) have used them for years with entire satisfaction.

Write for complete Catalog of Transmission Machinery

The Edgemont Machine Co.
Dayton, Ohio



Double Savings

in cutting on PEERLESS HIGH SPEED METAL SAWS; they save both Time and Material.

Supposing you save only 1-16 on each cut, 200 lbs. of material are saved on 100 cuts of 12 in. round. Your savings may be several times 1-16.

Have you ever stopped to consider the waste of material in wide cuts, especially at the present high cost, will pay for a PEERLESS in a remarkably short time?

This is only one of the reasons for so many repeated orders and large concerns having standardized the PEERLESS. The many other reasons can only be fully appreciated after comparative test.

Write for a list of users, some of these machines may be working in your vicinity. A careful investigation always arouses enthusiasm.

Peerless Machine Company
1609 Racine Street, RACINE, WISCONSIN

The
Old Way

TEMPERATURE

2000

INVOLVES
DANGER OF
DISTORTION
PITTING
BREAKING
FAILURE
AND LOSS
WHICH
CANNOT BE
AVOIDED
WITH EVEN
THE BEST
EQUIPMENT
AND THE
GREATEST
SKILL IN
MANIPULATION

Economy In High Speed Steels

You can now harden your high speed steels the HeTzy way, at a temperature of 1750 Fahr., saving the distortion, pitting and bursting that is so common the old way under the terrific heat of open fire hardening. This saves an immense waste of expensive steel. It also permits the grinding of high speed tools *before* hardening, saving again in grinding costs.

HEAT
TZY

is a scientific hardening compound for the successful heat-treating of high speed steels, insuring maximum hardness and toughness, while eliminating all chance of costly failure. Already we have 300 appreciative users, who are saving regularly many, many times the very moderate cost of HeTzy. But we want *you* for a satisfied customer too, and upon request shall be glad to send you a 100 lb. bag of HeTzy on 30 days' approval. If not thoroughly satisfied that it is all we claim, send back what is left at our expense.

Ask for Booklet "H"

Bennett Metal Treating Co.,
Elmwood, Conn.

The
HEATZY

Way

TEMPERATURE

1750

PRODUCES
MAXIMUM
HARDNESS
& TOUGHNESS
WITHOUT
CHANGE IN
SHAPE AND
WITHOUT
DANGER OF
FAILURE
EVEN WHEN
USED BY
OPERATIVES
OF ONLY
ORDINARY
SKILL

Simple, Convenient Attachments

Are provided with the

Greenfield

Trade Mark Reg. U. S. Pat. Office

Universal Grinder



Each Attachment is designed to serve a single purpose. This means that they are simple and without complicated adjustments to make them serve different purposes.

This makes it easy to change from one job to another and will save a lot of time. We have attachments for all kinds of tool sharpening and tool room grinding.

You had better get our literature

Greenfield Machine Company
Greenfield, Mass., U. S. A.

Combination Disc Grinder & Roll Sander

"Best machine ever built for pattern shop use"

Patented



The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.

Get the details today

Gardner Machine Co.

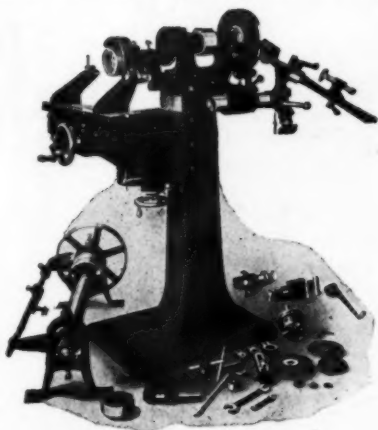
The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World

Not the first—But **THE LATEST**—
the best—the most universal grinder

The Grand Rapids No. 2



Just Think!

CAPACITY: Between centers up to $9\frac{1}{2}$ " diam. 20" long. Face Mills up to 12" diam. (with raising blocks up to 16" diam.), Drills up to $2\frac{1}{2}$ " diam., and other jobs in proportion.

RANGE: Anything that can be done on any other machine made—and then some.

PRICE: So low it will surprise you.

Get the circular today

Grand Rapids Grinding Machine Co.

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.

DIAMOND

SURFACE GRINDERS



Some Representative Users

Ford Motor Co.
 Willys-Overland Co.
 International Harvester Co.
 Chalmers Motor Co.
 Dodge Brothers
 Westinghouse Electric & Mfg. Co.
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 Continental Motors Co.
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 Shepard Electric Co.
 Century Electric Co.
 Rock Island Arsenal
 Winchester Repeating Arms Co.
 Colts Patent Fire Arms Mfg. Co.
 U. S. Navy Yard, Charlestown, Mass.
 Springfield Armory

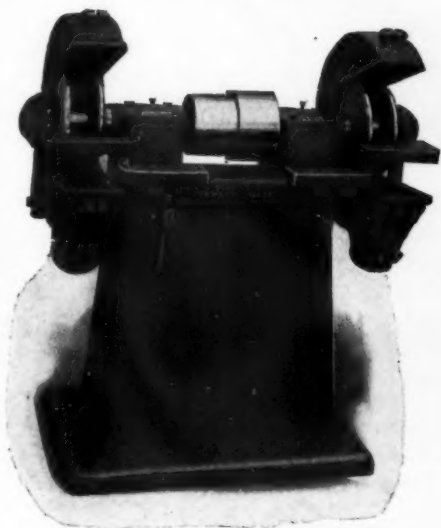
Remington Arms Union Metallic Cartridge Co.
 Watertown Arsenal
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 Standard Steel Car Co.
 Universal Portland Cement Co.
 National Cash Register Co.
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 Cleveland Foundry Co.
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 Brown-Lipe-Chapin Co.
 Warner Mfg. Co.
 Lapointe Machine Co.
 J. N. Lapointe Co.
 Taft-Pierce Co.

Send for printed matter describing the latest improvements on this machine. Ask for circular H.

Prompt Deliveries

DIAMOND MACHINE CO., Providence, R. I.

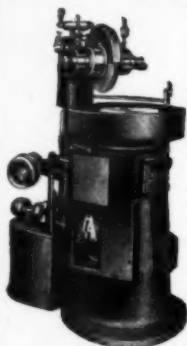
Grind it on a "Blount"



No. 6½

Our eight sizes meet all requirements of general grinding work. The large bearings insure accurate work under continuous heavy load.

J. G. BLOUNT CO., Everett, Mass.



12-Inch Bristol Precision Rotary Surface Grinder

For the rapid grinding
of flat, convex and con-
cave surfaces, to within
.0004" of manufactur-
ing accuracy.

*We shall be glad to mail
you complete description*

The C. G. Garrigus Machine Company
Bristol, Conn., U. S. A.

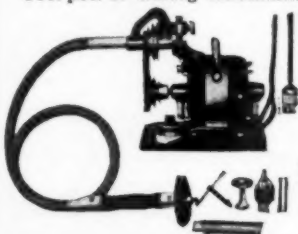
Strand Flexible Shaft Portable Grinder

Made in four sizes: 1-10, $\frac{1}{4}$, $\frac{1}{2}$, 1 H. P.

Adaptable for heavy or light grinding.

A universal portable flexible tool for every shop.

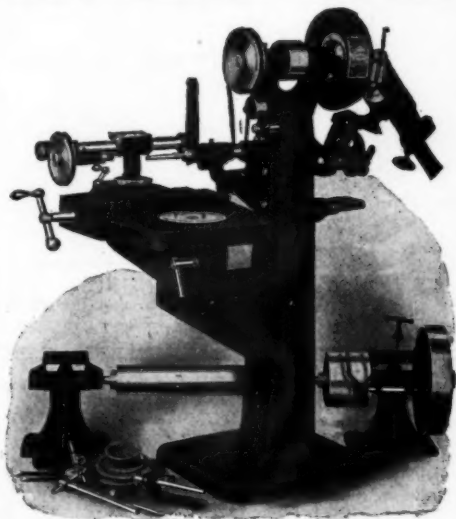
Tool post or drilling attachment and extra ball-
bearing handle
furnished also.



*Write
for
catalog
today*

R. G. Haskins,
547 Washington Blvd.
Chicago, Ill.

W. & M. Style BX
Cutter, Reamer and Drill Grinder



CAPACITY:

Face and Side Milling Cutters,.....	up to 12" Diam.
Angle and Plain Milling Cutters,.....	up to 8" Diam.
Gear Cutters and Hobbs,.....	up to 5½" Diam.
Reamers (Straight or Taper),.....	up to 17" Diam.
with Flutes not over 11½ in.	
Centers Swing Work, 7¼x17"—11½" Movement.	

Full Particulars on Request

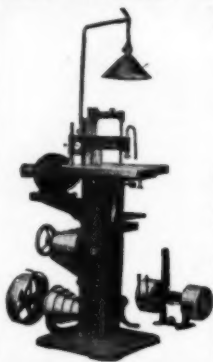
Wilmarth & Morman Co.

Makers of Drill—Surface—Universal Grinders

2185 Monroe Ave., N. W. Grand Rapids, Mich., U. S. A.

The Rearwin Die Filing Machine

Some of Its Features



Economy in labor.
Speed and accuracy.
Longer life of the dies.
Uniform clearance in the dies.
Equally effective on either
large or small filing.

Takes files, or hacksaws, from
3" to 12" long.

Pleased employes, and larger
dividends from greater savings.

Circular is yours for the asking

W. D. Rearwin

341 Mill Av., N. W., Grand Rapids, Mich.

Universal Ball Joints

Run perfectly to an
angle of 70 degrees.
Made in sizes $\frac{3}{4}$ ", 1",
 $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ " & 2".
Special sizes on order.



Vanderbeek Universal Ball Joints have been in successful
operation for a dozen years. Thousands are in daily use on all
kinds of machines. They are accurately made of the best ma-
terials, and run accurately without play or looseness in any di-
rection. We also make the "Giant" Universal Joint for heavy
shafting.

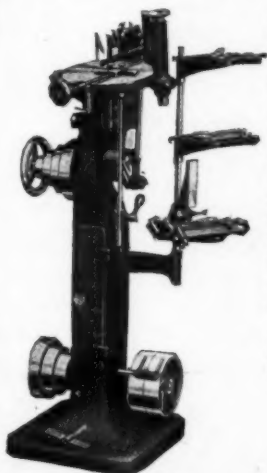
Let us quote on your needs in angular drives

Ainslie Machine & Tool Works

Successors to Vanderbeek Tool Works

Hartford, Conn.

Cochrane-Bly Machines Insure Accurate, Low-Cost Filing



No. 2 Filing Machine

Accurate filing by hand is difficult for the expert; with the Cochrane-Bly No. 2 Filing Machine it is rapidly and perfectly accomplished at minimum cost.

Table is adjustable, also length of stroke, and there are four speeds.

The standard equipment includes arms for Hack Sawing and extension holders for Jig Saws.

This machine meets the most exacting tool room requirements where close finish is desired.



Bench Filing Machine

The Bench Filing Machine, shown on the right, is compact and convenient for light filing. Furnished with or without Upper File Support.

Glad to mail you complete description

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

**Also Cold Saws and Automatic Cold Saw Sharpeners
Universal Shapers for Die and Tool Work**

Big Capacity for Small Work

Rhodes 7" Shaper Is a Winner

It has no equal today for keeping costs down to bed-rock on shaping and slotting light work such as dies, tools, models, etc., and on any work where accuracy is an essential.

With either this machine, or the vertical, or our combination of horizontal and vertical, you obtain all the essential elements of the larger, more expensive machines.

They are up-to-date cost reducers—write for description and attractive price

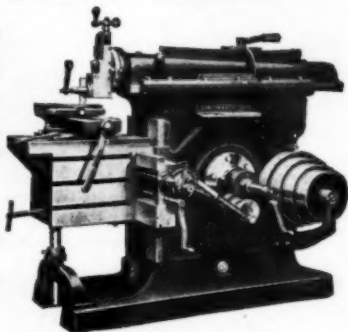
Rhodes Mfg. Co.
Hartford, Conn.



SHAPERS

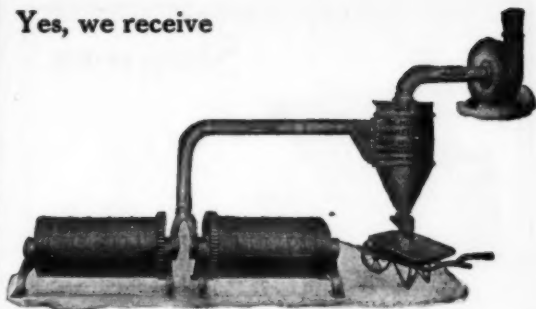
12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B.
Cincinnati, O., U.S.A.

Yes, we receive



Orders from Firms Rated AA A1

For Morse Dust Collectors



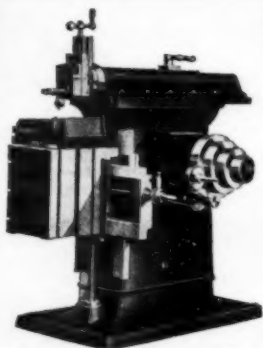
Knickerbocker Says:

"When the big organizations of this country who employ some of the brainiest engineers in the land, decide to use the 'Morse'—such a choice means more than just good business for us; the endorsement of experts always gives the peculiar satisfaction of work well done—of success.

"We ask you to investigate this Collector, which is making good in so many big plants. In some it is doing the same work at a saving of nearly half the power formerly used, and it reduces repairs to a minimum. We believe its efficiency and economy will also appeal to you."

Always glad to answer your questions

The Knickerbocker Company
Jackson, Mich.



Shapers

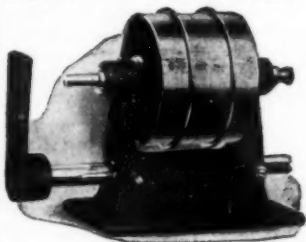
The best medium priced Shaper on the market.

Built in 16", 18", and 24" sizes, all back geared crank machines.

A few for early delivery.

The Osborne & Sexton Mchy. Co.
Columbus, Ohio

This Tapping Machine Now Has Greater Capacity



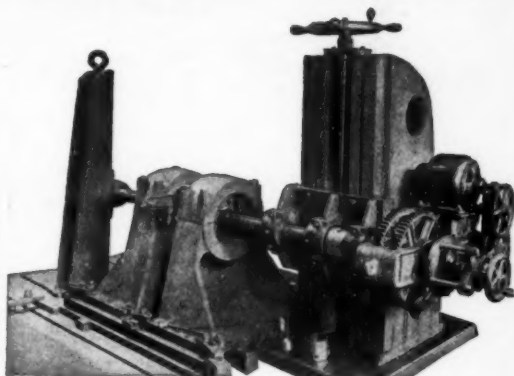
Burke's
No. "D" Taps
 $\frac{5}{8}$ " Holes
in
Horseshoe
Steel

BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$35.

Send for details today

The Burke Machine Tool Co., Conneaut, Ohio

Pedrick Column Boring Machine



The word "adaptability" was worked to death before this machine was invented, but we cannot find a single term which better describes our Column Boring Machine.

It will bore, face and drill more miscellaneous classes of work than it is possible to enumerate here. It does small or large work; much larger than is possible with ordinary machines. It has unusual power and rigidity and is simplicity itself.

The boring bar travels or operates in a fixed position, whichever you wish. Automatic changeable feeds, variable speeds, motor drive are provided without complication.

Don't you think you need such a machine?

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Mfrs. Portable Boring Bars, Crank Pin Machines, Pipe Benders, Portable Millers, etc.

For the Cheaper, Easier and Safer Handling of Pipe, Shafting and Bar Stock



Here is a strong but inexpensive device, weighing only 125 lbs., which safely stores several tons of expensive bar stock, out of the way and in a fourth the usual space. It is called—

"The Handiest Rack

in the Shop," because it deserves the name. It is easy to load and unload, and keeps the various kinds and sizes, up to 4" stock, nicely separated and always "get-attable." The cost is small and only once, and it works forever without wages—a bigger asset than the amount you pay.

A trial order will convince

We are ready to ship

Wm. S. Yohe Supply Co.

232 Second St., S. E.,

Canton, Ohio

For Calking Fences, Grating, Etc.

Better and at Less Cost



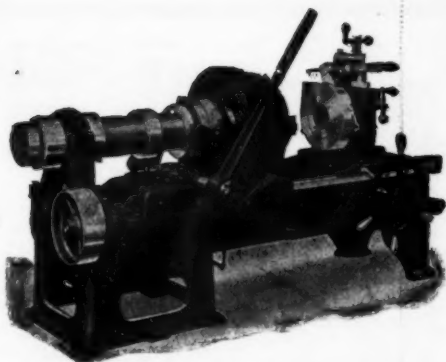
Brown's Calking Tool

is a wonderfully handy and practical device for calking iron fencing, window guards, jail work, fire escapes, and any work which requires calking through a railing. It is simple, adjustable, effective and very rapid in operation. It calks with a pressure, not with a blow, so that it does not jar and loosen the work already done.

*Write for description and
send sample for calking*

T. W. Brown & Son,

1135 Market Street,
Chattanooga, Tenn.



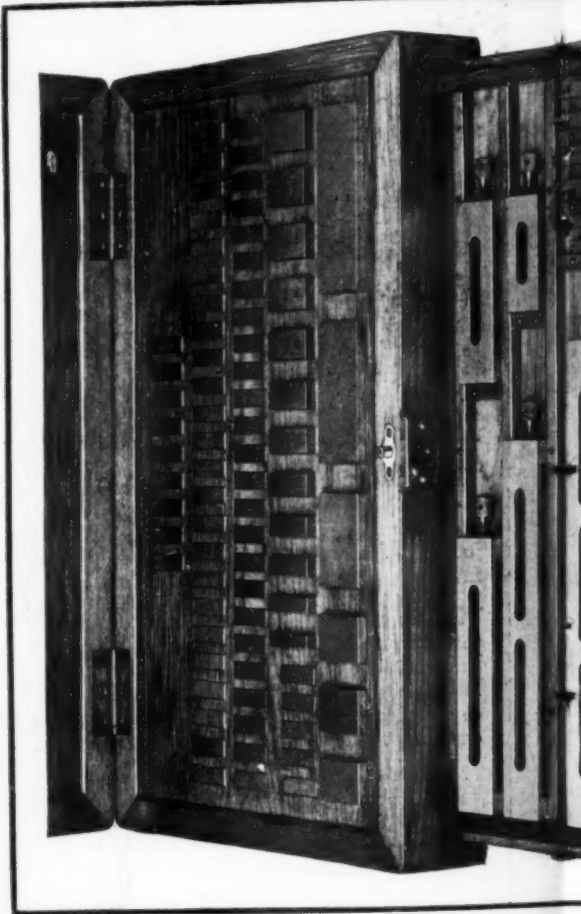
Bignall & Keeler Machines Are Efficient In Pipe Threading

That's The Story in a nut shell, because it includes capacity, accuracy, convenience and durability. The Peerless Quick Adjusting Mechanism enables you to adjust instantly without the aid of any tools.

The Seventeen Styles and sizes cut and thread pipe from $\frac{1}{4}$ to 18 inches. We have been building them for 33 years, and they have been tried out thoroughly in all kinds of shops and on all kinds of pipe. We are confident we can meet your needs—exactly.

*Kindly bear in mind that asking for information, prices, etc.,
puts you under no obligation. Let's hear from you.*

Bignall & Keeler Machine Works
Edwardsville, Ill.





S. & S. American Gage Standards One One Hundred Thousandth Inch Accuracy Guaranteed

Made in the United States by Experts of Life-Long Experience

Blocks are finished on all sides. Measuring surfaces are absolutely flat, parallel and accurate to .00001-inch at 62° Fahr.

S. & S. Gage Standards are sold under a guarantee which protects you fully—a guarantee we can afford to make because we know they will fill every claim made for them.

Most complete line made anywhere. Quick deliveries. Write at once for full information.

Schuchardt & Schutte, West Street Building, New York

JOHNSON



BRONZE BUSHINGS and BEARINGS

Over 2000 patterns in stock in a new plant specially equipped to ship promptly large quantities of bushings and bearings at a price which will interest you.

Send blue prints and specifications to Dept. H. M. for quotation on finished or rough bushings.

Five railroads serve this plant.

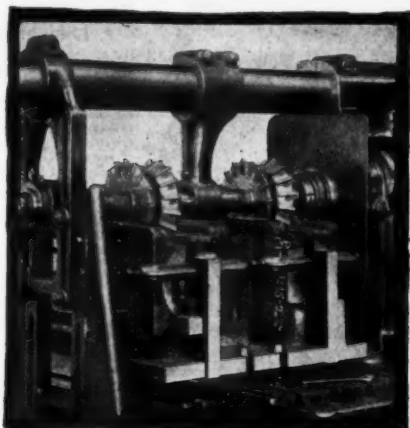
JOHNSON BRONZE CO.

Formerly The American Car and
Ship Hardware Manufacturing Co.

NEW CASTLE, PA.

Branches in principal cities





Note the full bearing at the back of each tooth against the solid steel body of the cutter—

yet these teeth can be easily and quickly removed when it is desired to replace them either singly or in a full set.

This strength of design has led to the adoption of these inserted tooth

Brown & Sharpe Cutters

in shops everywhere on "heavy duty" jobs. You, too, will find greater efficiency at a considerable saving by the use of these cutters in your shop wherever possible.

Catalog on Request

**BROWN & SHARPE MFG. CO.,
PROVIDENCE, R.I., U.S.A.**



No. 24 Press

Efficient Equipment Atlas Presses

for building and repairing automobiles and general machine shop operations requiring pressure up to 25 tons and centering capacity up to 36 inches.

For driving mandrels; bending and straightening, broaching, embossing with dies, setting bushings and many other every day manufacturing jobs, there is an Atlas Press. All sizes for all purposes. *It will pay you to investigate.*

Atlas Press Co.

317 N. Park Street,
Kalamazoo, Mich., U. S. A.

Arbor Presses

Any width.

Any tons pressure.

Easiest and quickest
hand press made.



Quick Acting
Power Presses
with
Automatic Regulation



Hydraulic Machinery

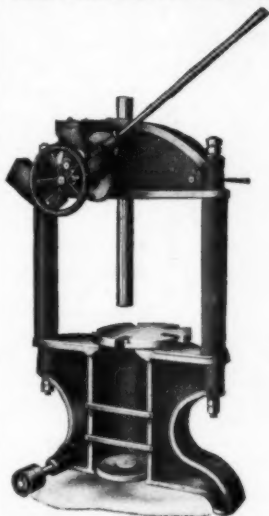
Any Capacity
for
Any Pressing Purpose

Write for catalog



LOURIE MFG. CO. Springfield,
Illinois

The Old Reliable Greenerd Arbor Presses



Are made
in all sizes and
for
every purpose
with pressure
ranging from
15 Pounds
to
35 Tons

Little Greenerds cannot be excelled for driving arbors into and out of small rolls and cutters, for use in type-writer and electrical factories, and for other light work.

Big Greenerds, up to 35 tons pressure, are equally effective for forcing in crank pins and bushings, straightening automobile axles, and for hundreds of other purposes requiring a steady, even pressure.

Medium-Size Greenerds are made in many styles for numberless uses. And all Greenerds work quietly and quickly, without marring, breaking or splitting anything, saving time and material.

Ask your dealer or write for catalog

EDWIN E. BARTLETT, NASHUA, N. H.

Good Bench Arbor Presses

At Very Moderate Prices

For Solid
Work up to
7" Diameter
ONLY \$11.78

For Solid
Work up to
11½" Diameter
ONLY \$15.38



Will take open
work of any diameter

These handy, moderate-priced Arbor Presses are made by clamping a regular Two-Arm Crane Wheel Puller into a Base that bolts to the bench. They have great strength, and will stand a strain of several tons.

These Arbor Presses take solid work up to 7" and 11½" respectively; but where the work is not solid, such as wheels with spokes, the Puller may be removed and clamped on again through the open spaces, which permits taking work of that kind of any diameter.

We can ship promptly upon receipt of order

The Crane Puller Co.

54 Lake Street,

Arlington, Mass., U. S. A.

Cap.

20

Tons

Price

66⁰⁰

Net



WEAVER Forcing Press

WE ARE SPECIALIZING upon this one size and style of press. It is the ONLY press we make, therefore we are able to produce a better article at less money than were we compelled to carry the overhead necessary to produce a great variety of styles.

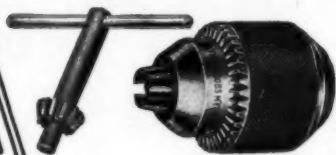
5-inch, 9-pound channel steel frame, 32-in. wide, 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (32-in. Width) \$66.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois



JACOBS IMPROVED DRILL CHUCKS

For Drilling Efficiency

Good drilling requires a chuck that will align drills properly and hold them securely against slipping. The widespread preference of experienced machinists for Jacobs Chucks shows how perfectly they meet their requirements. In Jacobs Chucks drills do their work to best advantage, always maintaining production or even increasing it.

**You Should Have
Our Catalogue and Prices**

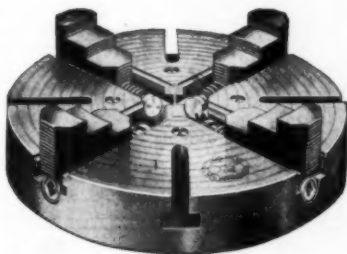
Send Us Your Address

The Jacobs Mfg. Co.
Hartford, Conn., U. S. A.

UNION

Steel Body Independent Chuck

No. 264



The Strongest Independent Chuck Made

Steel Body

Extra Heavy Jaws

Large Operating Screws

Write for Catalog and Information

Union Manufacturing Co.

**New York Office,
26 Cortlandt St.**

New Britain, Conn.

Makers of a Complete Line of Chucks

Sweetland Lathe Chucks

For Work Under Pressure



Thousands of shops today are working under tremendous pressure,

Sweetland Chucks are particularly useful on rush work, on account of their ready adaptability, great gripping power and permanent accuracy under the hardest usage. There's a reason.

*Ask for Catalog No. 10-C
For all styles and sizes*

The Hoggson & Pettis Mfg. Co.
New Haven, Conn., U. S. A.

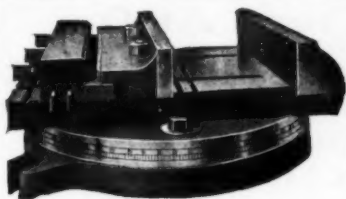


*We manufacture a great variety of
Lathe Chucks, Drill Chucks, Centering Chucks*

*Also
Portable Jaws for Lathe face plates and Machine tables.*

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 *Hartford, Conn.*

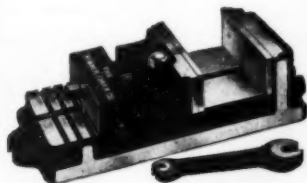


Skinner Planer Chucks

We can make immediate delivery of Skinner Planer Chucks in all sizes, with round or square base.

They are heavy and powerful—the heaviest made; guaranteed not to spring under the severest service. The kind for railroad shops and steel mills, or wherever the requirements call for chucks of the very sturdiest character.

Skinner Drill Press Vises



Widely known as the "Handy-tools." They are similar to our Planer Chucks, but more portable and convenient for use on a drill; adjustable for drilling at an angle.

*Write for No. 30 Catalog and Price List
Just received from Printer*

The Skinner Chuck Co.

San Francisco Office:
Rialto Building.

London Office:
149 Queen Victoria St.

Factory and Main Office:
New Britain, Conn.

New York Office:
94 Reade Street

Over 400 Motors In Stock

Largest Stock New General Electric
Motors in Middle West



Sizes, 1 h. p. to 150 h. p.

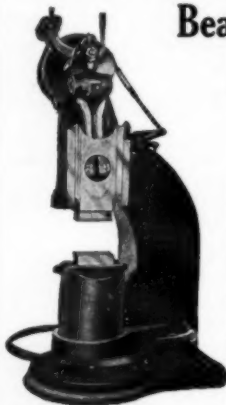
ALTERNATING CURRENT—25 and 60 Cycle,
220 to 440 Volts.

DIRECT CURRENT—115, 230, 550 Volts.

Wire Inquiries

Write for Nagel Motor List No. 23—Just Out

 **THE W.G. NAGEL ELECTRIC CO.** 
TOLEDO, OHIO



Beaudry Hammers

For General Forging

Saves Fuel, Time and Labor.

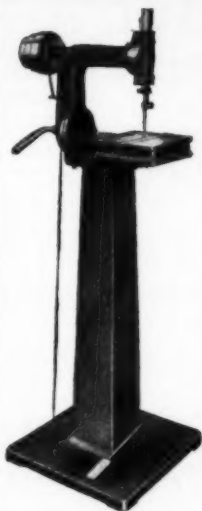
Cuts Forging Costs in Two.

Belt or Motor Driven

Beaudry & Co., Inc.

141 Milk St., Boston, Mass.

SALES AGENTS— Brown & Zortman Machinery Co., Pittsburgh, Pa.; Eccles & Smith Co., San Francisco, Los Angeles, Calif.; Portland, Ore.; Hallidie Machinery Co., Inc., Seattle, Wash.; Alfred Herbert, Ltd., Coventry, Eng.; London, Paris, Calcutta, Yokohama; C. T. Patterson & Co., Ltd., New Orleans, La.; Sherritt & Stoer Co., Philadelphia, Pa.; The English Tool & Supply Co., Kansas City, Mo.; The E. L. Essley Mch. Co., Chicago, Ill., Milwaukee, Wis.



Dwight Slate

Marking Machines

**Hand and Power
In Several Styles**

**We also make
a specialty of**

Die Cutting
For these machines

**We Have
Expert Engravers**

*Write for the
Marking Machine
Catalog*

Also the Noble & Westbrook Up-To-Date Filing Machine Which is Illustrated Above

This is an exceptionally accurate, convenient and productive filing machine. Hardened roller bearing, adjusted by a knurled screw, eliminates file breakage and increases production. An adjustable chuck permits the use of standard straight files. The stroke is adjustable from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches. Graduated head gives proper angle at a glance. Head may be tilted to any degree. No filings can drop into working parts, which are above the table. All bearings are phosphor bronze.

Complete description will interest you. Your address?

The Noble & Westbrook Mfg. Co.
Hartford, Conn., U. S. A.

What is your answer to these three questions?

1. How many sizes of solid mandrels do you have to carry in stock for your lathes?
2. Does the investment represent a negligible figure?
3. Are all the mandrels in constant use?

All sizes between $\frac{1}{2}$ " and 7" can be covered by one set of Nicholson Expanding Mandrels. One mandrel to a lathe instead of many; working all the time; no idle investment; quicker to insert and remove than any solid type; every move is time saved to increase production.

Try one for thirty days. We will lend you one without any obligation and pay the round trip charges.

W. H. Nicholson & Co., 117 Oregon Street, Wilkes-Barre, Pa.



NICHOLSON
Expanding
Mandrel

Kelly PRODUCTION Tools



228 RADIUM-CAST STEEL AUTO TRUCK WHEELS

For
Cylinders,
Crank Cases,
Connecting
Rods,
Auto Parts,
Etc.



We Make
DELIVERIES
in 1 to 10 days

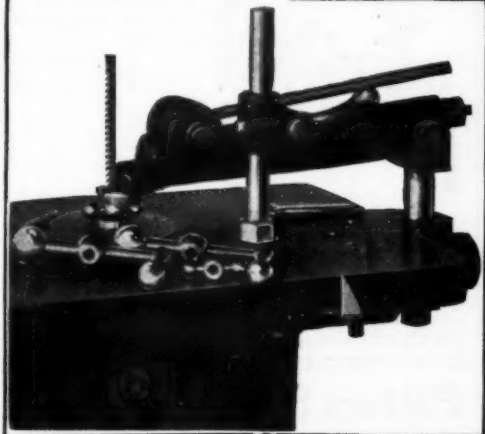
They
"ADJUST"
Write for the Catalog G-H.

THE KELLY REAMER CO.
CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agts. 40 Domestic Agencies.

KELLY
"Multiple"
7
Operations

How many small jobs
Like this have you?



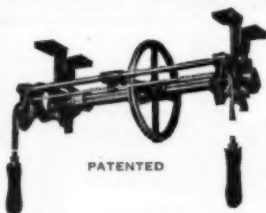
Davis Keyseaters

have saved hundreds of
firms time and money
for more than two score
years. We can do the
same for you.

Write for Catalog

DAVIS MACHINE TOOL CO., Inc.
ROCHESTER, N. Y., U. S. A.

Countershaft for Grinder Work



PATENTED

"DALTON" (Patented) Grinder Countershaft, is designed for use on small lathes of all makes, using either Internal or External Grinding Attachments.

The Hangers are universal in adjustment for use upon either ceiling or wall.

Manufactured only by the makers of the "DALTON SIX" Lathe.

Send for Bulletin

Dalton Manufacturing Corp.

Successors To Dalton Machine Co., Inc.

1911-15 Park Ave.,

NEW YORK, U. S. A.

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels

" No. 0 32 " "

" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table

" No. 9 Tilting Table

" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
12, 16, 20, 24 and 30 in., 7 ft. tables and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

RELIANCE

A New Motor Designed in a New Way

Before building our new line of Type T direct current motors, we went to thirty-five electrical engineers in the large steel mills and machine shops to find out just what they needed and wanted to meet the demands of their work. After that we built into Type T Motors the experience of these men who have had wonderful opportunities to learn the weak points in motors of every type and make.

Our new Bulletin 2014 tells the whole story with 39 illustrations.

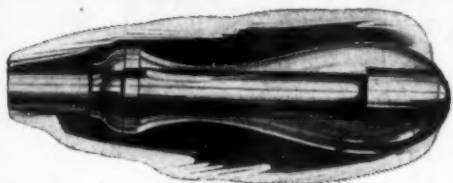
Reliance Electric & Engineering Company

1050 Ivanhoe Road

Cleveland

Ohio





Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices.

The Cincinnati Ball Crank Co.

Oakley, Cincinnati, Ohio

INDEX

An alphabetical index
of advertisers will be
found on pages 134
and 135 of this issue.

An Efficient Workman because **He's Protected**



Remove the possibilities of injury from moving parts of machines in your shops by the use of "Econo" machine and belt guards.

"Make 'em yourself"

Our free book, "Econo Expanded Metal Machine and Belt Guards" tells the story.

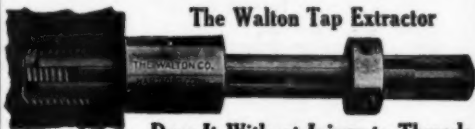
North Western Expanded Metal Co.

931 Old Colony Bldg.,

Chicago, Ill.

Broken Taps Removed Quickly

The Walton Tap Extractor



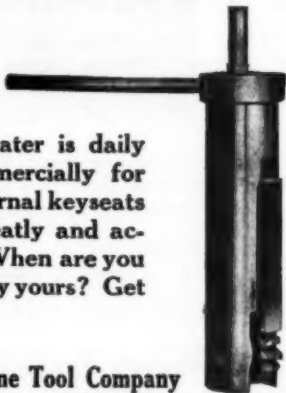
Does It Without Injury to Threads

When a tap breaks a machinist will naturally try to remove it without the foreman's knowledge. This usually takes lots of valuable time, but with the Walton Extractor on hand, this temptation is removed. It saves time, money and temper, and those exasperating delays on rush jobs. Small tool—small price—big results.

A folder and 60-day trial for the asking

THE WALTON CO., Hartford, Conn.

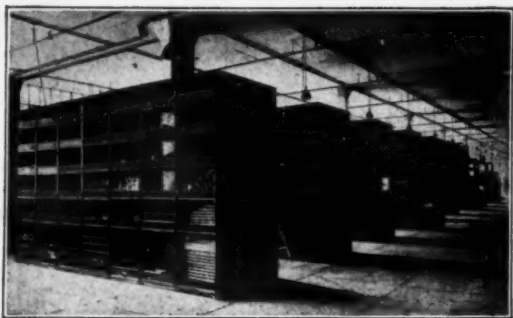
This keyseater is daily used commercially for milling internal keyseats quickly, neatly and accurately. When are you going to buy yours? Get Catalog 0.



National Machine Tool Company

2268 Spring Grove Ave.,

Cincinnati, Ohio



Terrell's Steel Shelving in a Large Motor Plant

Terrell's Steel Shelving

**Will Improve Your Storeroom 100%
Then Why Not Install it Now?**

Nobody denies the desirability of Terrell's Sectional Steel Shelving, which is adjustable, non-inflammable, unbreakable and everlasting, and which saves space and makes better and neater storerooms of greater capacity.

Here and there, however, we find the mistaken idea that it is more expensive than makeshift wooden fixtures. So it is in first cost, although not so much as you probably think. But if you figure it as a permanent investment, as you do your buildings, machinery and everything else, you will find it the most economical shelving you can buy. The first cost is the only cost; it is everlasting, it costs nothing for repairs or renewals, and it is adjustable to meet changing conditions without loss or damage.

Let us help you investigate without obligation to buy

Terrell's Equipment Co.

Hall & Division Sts.,

Grand Rapids, Mich.

Did you ever ask us to make
those screw machine collets,
with regular or irregular holes?

We are prepared to make good
deliveries.

Why not try us next time?

Quantities never too small or
too large to interest us.

Hardinge Brothers, Inc.
Chicago, Ill.

Manufacturers:—

Let me figure with you on your require-
ments. Send blue prints for estimates on:

**Tool Making,
Stampings,
Special Machinery,
Machine Parts,
Screw Machine Work.**

First-class shop, expert workmen

R. G. Clyne Machine Works
Columbia Bldg., St. Louis, Mo.

Contract Work Wanted

This department is exclusively for the use of those desiring to secure contracts for anything in the line of foundry or machine work, including press work, dies, jigs, fixtures, gears, die castings, drop forgings, screw machine products, springs, bolts, nuts, rivets, etc. Advertisements are to be set with side headings as shown, and with such display as may be appropriate to the copy used. Rates: one-eighth page, per month, \$4; per year, \$40.

<p>Gauges, Jigs Dies, Tools and Light Machinery</p>	<p>Model Tool & Gauge Co. 185 John St., Bridgeport, Conn. Quick deliveries on gauges, jigs, dies and tools. Light machinery built on contract. Send us your specifications. We shall be pleased to quote.</p>
<p>Screw Machine Products Tools and Special Machinery</p>	<p>Spafford Tool Works 10 Hoadley Place, Hartford, Conn. We make the tools for a big fire-arms plant. Why not for you? Also well equipped to do screw machine work in quantities and to manufacture special machinery.</p>
<p>Gray Iron and Semi-Steel Castings</p>	<p>The Smith & Winchester Mfg. Co. South Windham, Conn. Let us estimate on your requirements. We have skilled men and first-class shipping facilities.</p>
<p>Dies, Tool General Machine Work</p>	<p>Chicago Die & Machine Works 415 N. Carpenter St., Chicago, Ill. We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876.</p>
<p>Sheet Metal Stamping Dies and Tools</p>	<p>Walter L. Schultz 29 So. Clinton St., Chicago, Ill. We solicit your inquiry for sheet metal stamping. Manufacturing a specialty.</p>
<p>Press, Forge and Upset Work</p>	<p>Dowling Iron and Steel Company Boston, Mass. Wanted contract work on light and heavy stamping, forming and punching. Also finishing on milling machines, shapers, and lathes. Also upsetting, threading and light forgings. † Send us your sketches or samples.</p>
<p>Dies Tools Special Machinery</p>	<p>Robbins, Gamwell & Co. Pittsfield, Mass. Accuracy and efficiency in gages, dies and special machinery, is our specialty.</p>

CONTRACT WORK WANTED

<p>Sheet Metal Stamping</p>	<p>Frank B. Lothrop Co. South Acton, Mass. Blanking, Bending, Deep Drawing, Nickel Plating.</p>
<p>Dies, Tools Screw Machine Work and Special Machinery</p>	<p>American Voting Machine Co. Waltham, Mass. We offer for immediate service a portion of our factory facilities, especially adapted for die and tool work, automatic screw machine work and general manufacturing, together with experienced men. We also design and build special machinery and tools.</p>
<p>Sheet Metal Stamping Forming Punching</p>	<p>The Alsteel Manufacturing Company Battle Creek, Mich. Solicits inquiries for sheet metal stamping, forming, punching and assembling.</p>
<p>Castings Machine Work Oxy-Acetylene Welding</p>	<p>Bemidji Iron Works Company, Inc. Bemidji, Minn. We are in position to handle contract work in grey iron castings, brass castings, machine work, and Oxy-Acetylene welding. Let us figure on your requirements.</p>
<p>I Want Something to Make</p>	<p>Ernest A. Begerow 22 Lawrence St., Newark, N. J. I have a machine shop adapted to the economical production of duplicate work in which I am now making blanking tools, molds for composition and rubber molding, and parts for electrical and munition factories. I would like to produce any machine part or article of staple or special design that is wanted or can be marketed in quantities. Equipment can be modified or increased to meet requirements. Prefer something for which the demand will extend beyond the war. My costs are low and my ideas of profits reasonable. Your letter, sample or blue prints will have intelligent and prompt consideration.</p>
<p>Sheet Metal Stamping and Manufacturing</p>	<p>Batavia Specialty Co. Batavia, N. Y. We solicit your inquiries for light sheet metal stamping and manufacturing of specialties.</p>
<p>Is Your Equipment All Busy?</p>	<p>Why not get in some special work to fill in the idle time? Let the manufacturing public know what you can do, and what machinery you have to do it with. Space in this department costs but little, and covers the metal manufacturing field as with a blanket. Why not try it?</p>

CONTRACT WORK WANTED

<p>Gray and Malleable Iron Castings Die Castings</p>	<p>Lough Brothers 90 West Street, New York City Gray iron castings, one ounce to twenty tons. Malleable iron castings. Die castings in aluminum, tin and zinc alloys.</p>
<p>Dies, Gauges Jigs and Fixtures</p>	<p>A. N. Van Deman 95 William St., New York City Model and experimental work; special machinery built to order; contract manufacturing. Finished parts, of intricate shapes, accurately produced from electrolytic copper</p>
<p>Tools, Dies Jigs General Machine Work</p>	<p>Commercial Motor Car Co., Inc. Owego, Tioga County, N. Y. Screw machine products. Efficient service and prompt deliveries. Send us your blueprints for quotations.</p>
<p>Machine Work</p>	<p>The Knight Manufacturing Co. 1510 Market Ave., S., Canton, Ohio Lathe, planer, milling machine, gear cutting and drill press work, on contract or hourly basis. Mail us your blue prints for estimates.</p>
<p>Dies, Tools, Jigs, Gauges Model and Experimental Work</p>	<p>The Ideal Machine & Tool Co. 130-132 Opera Place, Cincinnati, Ohio We design and construct tools and machines for special purposes and manufacture metal specialties in quantities to order. We also make a specialty of developing and perfecting inventions. No charge for estimates. Write us today.</p>
<p>Want Orders for Die Casting?</p>	<p>This is the place where you can offer your facilities to users of metal products everywhere in the United States. Many readers of the Tool List are in the market for die castings, and they would welcome information as to what you can do for them.</p>
<p>Screw Machine Products</p>	<p>Litquick Gas Lamp Co. Defiance, Ohio</p>
<p>Work for Your Idle Equipment</p>	<p>You can get it, if you will let manufacturers know just what you can do. Tell them through this department. The cost is small; the distribution covers the metal manufacturing people everywhere in the United States.</p>

CONTRACT WORK WANTED

<p>Drop Forgings <i>(All Kinds)</i></p>	<p>Bonney Vise & Tool Works, Inc. Allentown, Pa. Quick and Accurate Drop Forging and Finishing Good tools, good men, and good management insure precision and promptness. Investigate; when you know our facilities and our record you'll want our service.</p>
<p>Light Stamping Drawing Piercing Etc.</p>	<p>Automatic Department THE METAL PRODUCTS CORPORATION Providence, R. I. Equipped for stamping, drawing, piercing, bending, assembling and finishing in any of the electroplated finishes. We do light work only, but for this have unusual facilities for rapid production at low cost. Get our price.</p>
<p>Pressed and Stamped Steel Parts</p>	<p>Geuder, Paeschke & Frey Co. 1325-1700 St. Paul Av., Milwaukee, Wis. It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81." Send samples or blue prints for est.</p>
<p>Do You Want Work On Contract?</p>	<p>If you want contract work, state in one of these spaces what you are prepared to do, and it will go into more manufacturing plants than if published in every mechanical journal in the country.</p>

WHEN YOU INQUIRE

of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.

Want More Orders?

They are to be had for special contract work in machining, stamping, forging, casting, welding or any department of machine manufacturing. The problem is merely to bring the capacity and the demand for it together. If you have the idle capacity, and want work for it, the "Contract Work Wanted" department of the Tool List will help you to get in touch with machine-making plants everywhere in the United States. Its circulation among American metal working plants is country-wide. There is no other available means by which you can reach so many.

Don't let your equipment stand idle. That costs money—a lot more than it will cost you to find work for it. Write me for further information, and for a copy suggestion, which I shall be glad to make without cost or obligation.

A. H. Hitchcock, Publisher

Hitchcock's Machine Tool List

1220-1235 Caxton Building, Chicago, Ill.



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WHILE EQUAL to an Electric Motor for quick work, it is much more economical when steam or compressed air is available. It's an ideal drive for our portable boring bars, valve seat planers, milling machines, etc., in railway and general repair shops. Accurately balanced, it runs up to 400 r. p. m. with very little vibration. An oil tight case encloses all working parts, making it dust and fool proof. **Q** As cost reducers our Portable Tools are second to none wherever they can be used. The line now includes:

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1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **40 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you require is not listed, use the blank enclosed to make known your wants to the publisher.

FOR SALE BY

The Machinery Warehouse, 38th & Laflin Sts., Chicago, Ill.

Two excellent electric light generators suitable for good-sized machine shop: 1-75 k. w., 125 volt, d. c. Westinghouse generator, direct connected to a Westinghouse vertical engine with sub-base.

1-35 k. w., 125 volt, d. c. Bullock generator, direct connected to a Harrisburg horizontal engine with sub-base.

The larger machine is suitable for about 1500 16-c. p. carbon lamps, and the smaller one for 700 lamps. Either one will be furnished in guaranteed condition.

FOR SALE BY

Machine Tool & Supply Co., Davenport, Iowa.

DRILLING MACHINES.

20" Milwaukee drill presses, (8).	30" Snyder, power feed to head, (2).
20" all-gear drill presses, (3).	32" Cleveland, tapping attachment.
25" Cleveland, power feed.	Radial drills, (2).
25" Snyder, power feed to head.	

LATHES AND PLANER.

13" lathes, (3).	18" lathes, hvy. duty, qk. chg., (4).
15" lathes, (6).	24"x24"x6' Ohio planer, like new.

Furnace, forge, electric motors, wood-working machinery, big stock of grinders, several second-hand lathes and drill presses.

FOR SALE BY

B. C. Allen Machinery Co., 1000 W. Randolph St., Chicago

Drill, 25" Prentiss,.....\$150.	Miller, No. 2 univ., div. head., \$550.
Drill, 6-spindle sensitive,..... 45.	Motor, d. c., 1 h. p., and starter 25.
Lathe, 12"x5' Reed,..... 140.	Punch press, No. 6 Walsh,..... 120.
Lathe, 13"x5' Willard, d. b. g., 350.	Punch press, No. 2,..... 185.
Lathe, 15"x5' set-over speed,.... 60.	Punch press, No. 3,..... 240.
Lathe, 16"x6' Barker,..... 350.	Screw machine, No. 1 B. & O., 330.
Lathe, 18"x10' Bradford,..... 500.	Turret lathe, 11x4, auto. chuck, 100.
Lathe, bench, slide rest, c.s., & c., 110.	Emery grinders, hack saws, squaring shears, etc.
Lathe chucks, 4", 5", 6" and 8".	Have you any machines to sell?
Miller, No. 2 plain b. g.,..... 325.	

FOR SALE BY

Enterprise Machinery Co., 32-34 S. Clinton St., Chicago, Ill.

Brake, Ohl, 10', 14 ga.....\$1600.	Press, Bliss No. 3½, dbl. acting \$ 700.
Cold saw, Atlantic, 24" auto. gr. 275.	Press, scr., b. g. pwr., 12" to 0" 240.
Crane, 24' steel, 10 ton (\$2500) 600.	Riveter, hyd. (\$10000.) 10 stake 3750.
Generator, stm. turb. 222a, 90 v. 600.	Scr. mch., 14" W. & S. \$250 tools 850.
Grinder, Wells & Son..... 95.	Screw mch., 14" Clev'd. auto... 575.
Grinder, roll, 16"x40"..... 300.	Screw mch., 9-16" Clev'd. auto. 375.
Hoist, chain, 2 t. \$15; 5 t. trip... 145.	Shaper, 16" Gould..... 140.
Kick press..... 22.	Tire heater, gas, blower, motor 150.
Miller, Am. No. 2 pl. fine cond. 550.	Wire crimper, power..... 45.
Planer, 18"x4' P., hvy. fine cond. 350.	500 other tools. Write us.

SECOND-HAND MACHINERY

FOR SALE BY

Stocker-Rumely-Wachs Co.,

117-121 N. Jefferson St., Chicago

Immediate Delivery.

DRILLING MACHINES.

Leland, h. s., b. b., bench type.
No. 1 $\frac{1}{2}$ Knight driller and miller.
22" W. F. & J. Barnes, s. h., b. g., p. f.
32" Hamilton, s. h., b. g., p. f.
34" W. F. & J. Barnes, s. h., b. g., p. f.
30" Valley City radial.

3' Gang plain radial.
3 $\frac{1}{2}$ ' W. E. Gang radial.
Avey 4-spindle, b. g.
12-spindle multiple, P. & W.
20" W. F. & J. Barnes, 4-spindle.

GEAR CUTTERS.

Reynolds hobber.
No. 11 B. & S. automatic.
30"x9" Gould & Eberhardt automa-
tic, for spur and bevel.

24"x7" Gould & Eberhardt, for spur.
26" No. 3 B. & S., for spur.
36" Walcott, for spur.
36"x9" G. & E., for spur.

GRINDERS.

Yankee drill grinder.
Leland universal, with power feed.
No. 1 $\frac{1}{2}$ Cincinnati tool & cutter.
No. 2 Woods tool & cutter.
8"x30" Modern, plain, new.

14"x20" B. & S., plain.
Garvin hole grinder.
Gisholt tool grinder.
No. 5 Diamond, water tool.

LATHES.

No. 3 $\frac{1}{2}$ Rivett.
No. 3 Cataract.
No. 5 Cataract.
6"x30" Dalton.
13"x 5' P. & W., c. r., taper.
14"x 6' Fairbanks, c. r., taper.
16"x 6' Prentice, c. r.
18"x 8' Muller, r & f.
18"x 8' L. & S., pat. head, c. r., taper.

18"x10' Fitchburg, c. r.
18"x12' Barker, c. r.
20"x14' Blaisdell, c. r.
21"x12' New Haven, c. r.
24"x13' New Haven, c. r.
36"x20' American, t. b. g.
32"x16' Blaisdell, c. r.
3 $\frac{1}{2}$ "x60" Fitchburg Lo-Swing.

PLANERS.

24"x24"x 4' Gray, one head.
30"x30"x 8' Cincinnati, two heads.
36"x36"x14' Sella, 1 head.
40"x38"x14' Putnam, 1 head.

39"x39"x12' New Haven, one head.
50"x50"x18' New Haven, two heads,
two extension heads.

SCREW MACHINES.

1" B. & S. plain.
16" P. & W. plain.
No. 2 Costello, plain head.
No. 2 P. & W., friction head.
No. 4 Pearson, geared head.

No. 3 Bardons & Oliver, plain head.
 $\frac{1}{2}$ " Cleveland automatic.
2 $\frac{1}{2}$ " Cleveland automatic.
2 $\frac{1}{2}$ "x11" Acme, (4).
No. 6 Warner & Swasey, (3).

TURRET LATHES.

16" Lodge & Shipley.
No. 22 Garvin, plain head.
28" Niles.
2"x24" Jones & Lamson.
3"x36" Jones & Lamson, chucking
equipment.

3"x36" Jones & Lamson, bar equip.
3"x36" Warner & Swasey, dbl. spdl.
3 $\frac{1}{2}$ "x40" Greenlee, chucking equip.
21" Gisholt, with taper.
24" Gisholt tur. lathes, taper att., (2).

PUNCHES AND PRESSES.

No. 3 Bauroth, o. b. i.
No. 5 Bauroth, o. b. i., geared.
No. 6-N American Can.
No. 5 L. & A. dbl. punch & shear.
No. 1 L. & A. horizontal punch.

No. 1 L. & A. multiple punch.
No. 2 L. & A. multiple punch.
No. 2 L. & A. angle iron shear.
No. 2 Cleveland double end punch
and shear.

MISCELLANEOUS.

Car-wheel boring mill, 52" Niles.
Forging machine, $\frac{1}{2}$ " Acme.

Pipe machine, 3" Stover.
Thread miller, 6"x14" P. & W.

SECOND-HAND MACHINERY

FOR SALE BY

Henry Prentiss & Company, Inc., - Singer Bldg., New York

Formerly

Prentiss Tool & Supply Company,

BORING MACHINES.

No. 1 Beaman & Smith, double hd.
24" Bullard vertical, 2 heads.

30" Bullard vertical, 1 head.
2 spindle Baker Bros. cylinder borer.

DRILLING MACHINES.

24" Henry & Wright ball bearing,
sensitive.
4-spindle Woodward & Rogers.
4-spindle Barr.
5-spindle Reed.
36" Bickford, sliding head.

4' Bickford full universal, (11).
36" Prentice Bros., upright.
No. 37 Natco, 18 spindles.
10 spindle Gardam adjustable.
No. 4 Quint turret.

GRINDERS.

No. 3 Rivett on stand.
12x60 Landis universal.
12x30 Landis plain.
No. 2 Garvin hole grinder.

No. 6 Bryant internal.
No 200 Heald, piston ring.
No. 11 Rivett, oscillating.
Greenfield universal cutter & tool.

LATHES.

14"x8' Lodge & Shipley, q. c.
15"x8' Hamilton, plain rest, p. c. f.,
taper attachment.
16"x8' Porter, compound rest, power
cross feed.
16"x 6' Automatic threading.
18"x 6' Reed, compound rest, power
cross feed.
18"x8' Lodge & Shipley, 3 step, quick
change, double back gear, (10).
18"x 8' Rahn-Carpenter, compound
rest, power cross feed.
28"x14' Pond, compound rest.

18"x8' American, compound rest,
quick change, taper attachment.
20"x8' Lodge & Shipley, selective
head, (5).
18"x8' Lodge & Shipley, c. r., p. c. f.,
quick change.
22"x10' Lodge & Shipley, selective
head, (5).
26"x14' Gleason, compound rest,
power cross feed.
36"x14' Pond, compound rest, power
cross feed.

MILLING MACHINES.

No. 12 Brown & Sharpe plain.
No. 3 $\frac{1}{2}$ Garvin plain.
Rivett swivel miller.
No. 2 Garvin hand miller.
No. 3 Garvin plain.

No. 13 Brainerd universal.
Grant manufacturing.
No. 2 Garvin universal.
No. 3 Reed plain.
No. 2 Pratt & Whitney hand.

PLANERS.

24"x24"x 6' Wheeler.

26"x26"x 5' Pond.

SCREW MACHINES.

1" Smurr & Kamen.
1 $\frac{1}{2}$ " No. 54 National Acme auto.
20x7 F. & S. universal turret.
15x6 Windsor turret.
20" Jones & Lamson, single pulley
drive.

24" Gisholt turret lathes, (2).
21" Gisholt turret lathe.
4" Rivett, wire feed.
3 $\frac{1}{2}$ " Cleveland automatic.
1 $\frac{1}{2}$ " National-Acme automatic.
1 $\frac{1}{2}$ " Rivett, plain turret.

MISCELLANEOUS.

Cutting-off machine, 6 $\frac{1}{2}$ " automatic.
Gear cutter, 26x10 Cincinnati.
Hammer, 675 lb. P. & W.
Keyseater, No. 1 Baker Bros.

Press, straight side, No. 63 V. & O.
Press, inclinable, No. 2 $\frac{1}{2}$ V. & O.
Shaper, 14" Steptoe.
Shaper, 24" Hendey.

SECOND-HAND MACHINERY

FOR SALE BY

New York Machinery Exchange, Inc., 50 Church St., New York City
Machine Shops and Warehouses: Jersey City
222-234 Culver Ave. 63-83 Pollock Ave.

New York's Greatest Stock.

(Partial list)

BORING MILLS.

- 16' J. Morton Poole heavy duty vertical, two swivel heads, motor driven.
- 7½' Betts vertical, extension to 10', two heads.
- 60" Bullard vertical, two heads.
- 52" Bement-Miles vertical, two heads, motor driven.
- 34" Rogers vertical, single turret head, (2).
- 30" Bullard vertical, single turret head, (5).
- 20" Bullard vertical turret lathe, with side head and turret head.
- 18" Bullard vertical turret lathe, with side head and turret head.
- Betts horizontal, 2½" bar.
- Pratt & Whitney horizontal, 2½" bar.

PUNCHES AND SHEARS.

- Wm. Sellers punch, 48" throat, capacity 6" thru 1½".
- General Engineering Co. 72" multiple punch, capacity 11-16" hole in ½" plate; weight about 25,000 lbs.
- Reade multiple punch, 15" throat; arranged for motor drive.
- Hetherington & Berner double geared beam punch, 1½" stroke, 17" throat.
- Wm. Sellers double end punch & shear, 21" throats, punch 1½" thru 1".
- Bass Machine Co. double end punch & shear, 20" throats, punch 1½" in 1".
- No. 4 Industrial double end punch & shear, 20" throats, cap. 1" in 1".
- McDougall double end punch & shear, 15" and 12" throats, punch 1" thru ½".
- No. 9A Badger double end punch & shear, punch ½" thru ½".
- No. 9 Royersford double end punch & shear, punch ½" thru ½".
- Perkins single end punch & shear, 30" throat.
- No. 000 Hilles & Jones single end punch & shear, 13½" throat, punch ½" thru ½".
- Kling Bros. rotary splitting shear, arranged for motor drive, capacity ½" plate, will split any width sheet.
- No. 384A Toledo rotary splitting shear, circle cutting attachment, 18" throat, cut circle to diameter of 72".
- No. 17 Niagara rotary shear, circle cutting attachment, 28" throat, cut circle to diameter of 72".
- Pels beam shear "T-40", capacity to cut to 15" 60 lb. I beams.
- Alligator shear, 12" blade, 1"x6" flat steel.
- Bement plate iron shear, 26" throat.
- Coping machine, 3" stroke, cope 24" I beams; weight 10,000 lbs.

MILLING MACHINES.

- No. 4B Brown & Sharpe plain, sgl. pulley drive.
- No. 4 Cincinnati heavy duty plain, single pulley drive.
- No. 4 Brown & Sharpe plain.
- No. 2 Hendey-Norton univ., dividing head, vertical att.
- No. 2 Cincinnati universal.
- No. 2 Cincinnati plain.
- New No. 1½ American improved, pl.
- No. 14A Garvin plain.
- No. 1 Kempsmith plain.
- No. 1 Pratt & Whitney plain.
- No. 5 Brown & Sharpe vert., (2).
- Beaman & Smith 2-spindle vertical, slab, table 24"x48".

PLANERS AND SHAPERS.

- 16' Dunkirk plate planer.
- 60"x60"x28' Betts planer, 2 heads.
- 55"x46"x15' Lincoln planer, 4 heads.
- 48"x48"x12' Powell hvy. duty planer, 2 heads on cross rail, 1 side head.
- 40"x40"x15' Pratt & Whitney planer.
- 40"x40"x10' New Haven planer.
- 38"x38"x14' Pond planer, 2 heads.
- 36"x36"x12' Niles planer, 2 heads.
- 32"x32"x10' Pond planer.
- 30"x30"x10' Powell planer, 2 heads.
- 30"x30"x 8' Niles planer.
- 28"x28"x 8' New Haven planer.
- 26"x26"x 8' Hendey planer.
- 28" Smith & Mills dbl. grd. shaper.
- 26" Lodge-Davis geared shaper.
- New 24" Hollingworth b. g. crank shapers, Aug. and Sept. delivery.
- 24" Steptoe geared shaper.
- 24" Hendey friction shapers, (3).
- 21" Juengst crank shaper.
- 20" Smith & Mills geared shaper.
- 16" Steptoe b. g. crank shaper.
- 15" Hendey friction shaper.
- 15" Williams geared shaper.
- 12" Juengst geared shaper.
- 10"x42" traveling head shaper.

SECOND-HAND MACHINERY

New York Machinery Exchange—Continued.

HAMMERS.

10,000 lb. Seliers, double leg steam.
2,000 lb. Morgan, steam drop.
1,800 lb. Billings & S., board drop.
1,500 lb. Billings & S., board dr., (2).
1,300 lb. Billings & S., board dr., (3).
1,000 lb. P. & W., board dr. forging.
800 lb. P. & W., board drop, forging.
750 lb. Toledo, rope lift drop.

600 lb. Cockburn & B. sgl. leg steam.
New 400 lb. Bement-M., dbl. leg atm.
200 lb. Bradley, upright compact.
100 lb. Niles-Bement-Pond, hand dr.
75 lb. Belden, strap.
60 lb. Bradley, cushioned helve, (2).
40 lb. Bradley, cushioned helve.
40 lb. Gould & E., hand rope dr., (4).

GRINDERS.

10"x36" Thompson universal.
10"x24" Norton plain cylindrical.
8"x36" Brown & Sharpe No. 12 pl.
8"x24" Bath universal.
6"x32" Norton plain, (2).
3' Pratt & Whitney vertical surface.
No. 2 Brown & Sharpe, surface, arranged for motor drive.
8"x32" Walker, surface.
12"x24" Diamond, surface.
8"x18" Saxon, surface.
5"x12" Whitney, surface.

No. 75 Heald internal.
No. 14 Landis internal.
No. 1 Brown & Sharpe internal.
6"x72" Buffalo, automatic knife.
No. 14 Cincinnati universal, cutter.
New "BX" Wilmarth & Morman, cutter, reamer and drill, cylindrical and internal.
No. 2 Garvin, cutter and reamer.
F. E. Wells, cutter, 16" bet. centers.
No. 4 Gardner, double end disc.

GEAR CUTTERS.

48" Newton auto., arranged for motor drive.
40" Flather auto., spur and bevel, arranged for motor drive.
36" Brown & Sharpe automatic.
24" Brainard automatic, (2).

24" Brown & Sharpe auto. spiral.
24" Schutte & Schuchard gr. hobber.
24" Whiton automatic.
20" Gould & Eberhardt gr. hobber.
19"x5" Grant-Lees auto. gr. hobber.
No. 12 Brown & Sharpe auto. (2).

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

14"x 5' Fitchburg, p. c. g.
14"x 6' Lodge & Shipley, q. c.
16"x10' Flather, with taper, q. c., (2).
17"x 8' Johnson, p. c. g., (2).
17"x 8' Sidney, d. b. g. & q. c., (10).
18"x 8' Milwaukee, sgl. bk. gr., (9).

18"x10' Superior, d. b. g. & q. c., (10).
18"x10' Milwaukee, sgl. bk. gr., (3).
18"x10' Flather, q. c.
20"x 8' Flather, q. c.
28"x16' Fay & Scott, h. s.

SCREW MACHINES AND TURRET LATHES.

No. 1 Bardons & Oliver.
No. 2 Bardons & Oliver.
No. 2 Garvin.
No. 4 Foster, (4).
No. 3 Garvin, b. g. & friction head.
No. 24 Garvin, b. g., friction head.

No. 3 P. & W., b. g., friction head.
2x24 J. & L., cone drive, bar equip.
3x36 Jones & Lamson.
15" Dreeses turret.
24" Davis chucking lathes, (3).
Potter & J. auto. chucking, (5).

MILLING MACHINES.

No. 7 Becker-Brainard, plain.
No. 12 Brown & Sharpe, plain.

Wisconsin hand millers, (6).
B. & S. 36" boring mills, tur. hd., (2).

MISCELLANEOUS.

Cold cutting-off saws, capacities 4", 5" and 6" round.
Dynamo, 17 k. w. Diehl.

Gear cutters, 36" Whiton and 36" Gould.

Hammers, cushioned helve, 250 and 25 lbs.

Lathe bed turret, heavy, for about 32" lathe.

Pipe cutting and threading machines, 4" and 6".

Planers, 40"x40"x12' New Haven, with 1 head, 17"x17"x3' Draper, with 1 hd.

Pneumatic portable riveter.

Saws, Atkins "Kwik Kut", (3).

Slab miller, 19"x8' Beaman & Smith, with two horizontal spindles.

Stamping and punching presses, a large number of the open back inclinable.

Melting furnaces, metal band saws, drill presses, grinders, several assorted sizes sensitive drill presses, etc.

SECOND-HAND MACHINERY

FOR SALE BY

W. F. Davis Machine Tool Company

549 Washington Blvd., Chicago Leader News Building, Cleveland
Singer Bldg., New York City Union Cent. Life Bldg., Cincinnati

Write or wire our nearest office for quotations.

This is only a partial list of available machines.

BORING AND TURNING MACHINES—VERTICAL.

- | | |
|---|--|
| 30" Bullard, one turret head. | 38" B. & S. one turret head, Dec. delivery. (2). |
| 30" Flather, one turret head. | 42" N.-B.-P. two swivel hds., motor drive. |
| New 30" Gisholt, Sept. delivery. | 72" Niles, two swivel heads. |
| New 34" Rogers, one turret head, September delivery. | 80" Niles, 2 swivel hds., slotting att. |
| New 34-42" Colburn, one turret head, August delivery. | 84" Sellers, one head. |
| 37" Niles, 1 swivel, one turret head. | New 8' Bickford, December del. |

BORING MACHINES—HORIZONTAL.

- No. 1 Barrett cylinder borer, 3 $\frac{1}{2}$ " bar type.
24" No. 2 Barrett, two side facing heads.
Conradson motor driven driller, borer and tapper, 5' adjustment of head on column, 2" spindle travel.
Lane & Bodley, capacity 68" x 15', floor plate 19', 8" boring bar, motor driven.
Hoefler horizontal driller and borer, with 1 11-16" spindle; vertical adjustment, 40"; horizontal adjustment, 46"; size of table, 33"x48".
Lucas, 24" bar.
Newburgh, 4" bar, 84" swing, 72" feed.

BULLDOZERS.

- | | |
|--|------------------------------------|
| No. 8 Ajax, 20 h. p., motor drive. | No. 7 Ajax, 30" stroke. |
| New No. 4 Garrison (same as No. 4 Williams-White). | No. 7 high speed Ajax, 16" stroke. |

COMPRESSORS—AIR.

- 8x8" Curtis, belt driven.
Ingersoll-Sargent duplex, 8x14 $\frac{1}{2}$ x8".
Cincinnati cross compound, two-stage, 790 cu. ft.
Ingersoll-Sargent steam driven, 345 cu. ft.
10x12" Chicago Pneumatic, belt driven.
10x10x10" single cylinder Smith-Vaille, steam driven.
10-16x13" Peerless, cross compound, steam driven.
22x13x16" Ingersoll-Rand, motor driven.

CRANES.

- 20-ton Alfred box electric traveling crane, 40' span.
25-ton Browning electric traveling crane, 40' span.
Locomotive, 35' boom, standard gauge, steam driven.

CUTTING-OFF MACHINES.

- | | |
|--------------------------------|--|
| No. 00 Brown & Sharpe, (2). | 4 $\frac{1}{2}$ " Williams, (10). |
| 1-2" capacity Warner & Swasey. | 4" Curtis & Curtis, (3). |
| 3 $\frac{1}{2}$ " Hall, (4). | Davis, 4 $\frac{1}{2}$ " capacity, (30). |

DRILLING MACHINES—RADIAL.

- | | |
|--|--|
| New 2' American, cone drive, (2). | New 4' American, t. a. Sept. del., (2). |
| 3' Bickford semi-universal table. | 4' Mueller, pl., speed box drive, (2). |
| 3' Bickford, gear drive. | 8' semi-universal American. |
| New 3' American, sen. tap. att., (3). | New 5' Baush plain, (5). |
| New 3' Prentice, July delivery, (4). | 5 $\frac{1}{2}$ ' American full universal. |
| New 3' Mueller, pl., spd. box drive. | 6' Baush plain, cone driven. |
| New 3 $\frac{1}{2}$ ' American tapping attach., Sept. delivery, (2). | New 6' Triumph, motor drive, Sept. delivery, (10). |
| New 3 $\frac{1}{2}$ ' Western, 86" circle. | |

DRILLING MACHINES—HEAVY DUTY.

- | | |
|---|---|
| New No. 2 Colburn, (2). | D-3 Colburn, plain table, (2). |
| No. 14 Colburn, 24" swing, cap. 2" in solid steel, (3). | No. 310 Baker, single pulley drive, late type, (4). |

DRILLING MACHINES—MULTIPLE SPINDLE.

- New Leland-Gifford sensitive, four spindle, (4).
No. 24 Baush, 12 spindles.
No. 30-C Baush, 12 spindle, cap. 1 $\frac{1}{2}$ " holes, 30" circle.
No. 11 Pratt & Whitney, 16 spindle, cap. 10 spindles, $\frac{1}{2}$ " cap.
14 spindle Baush, cap. 1" holes, 36" circle.

SECOND-HAND MACHINERY

W. F. Davis Machine Tool Company—Continued.

GEAR CUTTING MACHINES.

- | | |
|---|---|
| No. 1 Whiton. | No. 1 20" S. & S. gear hobber. |
| No. 3 Bickett gear rack planer, del. 60 days. | 22x8 G. & E. spur and bevel cutter. |
| No. 3 B. & S. auto. gr. cutter, spur. | 24" Fellows gear shaper. |
| New 6" Standard gear cutter, spur. | 24x8" G. & E. for spur and bevel. |
| 12" Gleason bevel gear planer. | 24" Becker Brainard. |
| 15" Gleason bevel gear planer. | New No. 10 Whiton, bevel 32", spur 34". |
| 16" Bilgrim bevel gear generator. | 36" Fellows gear shapers, (3). |
| 20" Grant-Lees gear hobber. | |

GRINDERS—UNIVERSAL FOR CUTTERS, DRILLS, REAMERS.

- | | |
|--------------------------------|---|
| LeBlond universal, 1 year old. | New Walker No. 2 outfit K., (cap. 9x26"). |
| No. 1 Cincinnati. | No. 190 Wells, (8). |
| New Norton No. 1. | 12" Gisholt No. 5. |
| New Walker No. 1. outfit B. | |
| New Wilmarth & M. style B. K. | |

GRINDING MACHINES—CYLINDRICAL—PLAIN.

- | | |
|--------------------------------------|---|
| 5x48" Pratt & Whitney. | 12x32" Landis, rebuilt. |
| New No. 12 B. & S. 8x26", Sept. del. | 12x36" Modern, self-contained, motor or belt driven, (6). |
| New 10x36" Landis, immediate. | 12x42" Landis, self-contained, (2). |
| New 10x36" Norton, Sept. delivery. | 12x48" Modern, self-contained, motor driven, (6). |
| New 10x50" Norton, Sept. delivery. | 16x66" Landis, with crank grinding. |
| 10x60" Landis. | 18x96" Brown & Sharpe. |
| New 10x72 Norton, plain. | |
| 12x24" Modern, self-contained, (20). | |

GRINDING MACHINES—CYLINDRICAL—UNIVERSAL.

- | | |
|------------------------------|---|
| 8x24" Brown & Sharpe No. 13. | New No. 2 Morse, universal, cap. |
| New No. 2 Bath, 9x20". | 12x30", November delivery, (9). |
| New No. 2 Walker, 9x26". | No. 3 (12x40") Brown & Sharpe. |
| No. 1 1/2 (10x30") Landis. | 12x42" Landis. |
| New No. 2 1/2 (10x36") Bath. | New No. 3 Modern 13x40", Sept. delivery, (2). |
| 10x42" Modern. | |

GRINDERS—INTERNAL.

- | | |
|-------------------|---------------|
| No. 1 1/2 Landis. | No. 75 Heald. |
| No. 70 Heald. | |

GRINDERS—CYLINDER.

- | | |
|------------------------|------------------------------------|
| No. 27 Brown & Sharpe. | No. 60 Heald, single pulley drive. |
|------------------------|------------------------------------|

GRINDERS—PROFILE.

- New Cleveland.

GRINDERS—DISC.

- New No. 17 Gardner (pattern makers).

GRINDING MACHINES—RING.

- | | |
|------------------------------------|----------------|
| New No. 14 Besly, two ring chucks. | No. 210 Heald. |
| No. 200 Heald. | |

GRINDING MACHINES—EDGE.

- No. 374 Safety Emery Wheel Co.

GRINDING MACHINES—SURFACE.

- | | |
|---------------------------------------|---------------------------------------|
| New No. 1 Wilmarth & Morman. | New No. 2 Reid, same as B. & S., (4). |
| No. 1 Diamond, auto. cap. 12x12x24". | New No. 2 Brown & Sharpe. |
| New No. 1 1/2 Walker's complete, (2). | |

GRINDING MACHINES—DUPLEX.

- No. 5 Bath, suitable for grinding cylinders, piston rings, etc., 16" feed, swivel table, water pump.

GRINDING MACHINES—FACE.

- Diamond face grinder, 4" travel, 14" wheels.

HAMMERS—POWER FORGING.

- | | |
|------------------------|----------------------------------|
| 40-lb. Bradley, helve. | 150-lb. Bradley, helve, upright. |
|------------------------|----------------------------------|

HAMMERS—BOARD LIFT, DROP.

- | | |
|-----------------------------|------------------------|
| 400-lb. Billings & Spencer. | 2000 lb. Chambersburg. |
|-----------------------------|------------------------|

HAMMERS—STEAM FORGING.

- | | |
|--|---|
| Used 600 lb. Niles, single frame. | New 1100 lbs. Bell, standard guide, single frame. |
| 18" Morgan & Williams, 600 to 800 lbs., 21" cap. | 3000 lb. Bell, Sept. delivery. |

(Continued on next page)

SECOND-HAND MACHINERY

W. F. Davis Machine Tool Company—Continued.

KEYSEATERS.

No. 9 Mitts & Merrill, (2).
No. 2 Mitts & Merrill. | 60" stroke Compton Knowles
broacher.

LATHES—MANUFACTURING, NOT SCREW CUTTING.

New No. 3 Hardinge, bench, (2).
Reed Prentice shell lathes, for 4"
or 18 lb. American shells, (14).
New Simplex, 16"x8", (70).
No. 3-X Reed-P., semi auto., (13).
14"x8" Reed, stud and bolt, (40). | 16"x8" Fairbanks-M., hvy. duty, (5).
16x8 Simplex, single pulley dr., (14).
18"x8" Battle Creek, hvy. duty, (22).
20"x8" Mershon, (5).
20"x10" Hindman, high duty, (50).

LATHES—ENGINE.

New 12"x4" Shepard, reverse hd., (6).
New 12"x5" Shepard, reverse hd., (8).
New 12"x6" Shepard, reverse hd., (3).
14"x6" Bradford, taper attachment.
New Hardinge Bros. 15" precision
lathe, q. c. g., page 35, 3rd Catalog.
New 16"x8" Cleveland tool room
lathes, complete equipment, (3).
16"x8" LeBlond, pan bed, q. c. g.,
taper attachment, (2).
18"x8" L. & S., geared head, taper.
18"x9" Chard, (3).
18"x10" Hendey, q. c. g., 14" chuck.
New 19"x8" LeBlond, heavy duty.
20"x8" Lodge & Shipley, q. c. g., (22).
New 20"x8" American hvy. duty, (7).
New 21"x10" Porter, s. b. g., (25).
New 22"x10" Monarch, dbl. bk. gr.,
q. c. g., (5).
22"x10" Putnam, oil pan, turrets, (9). | 24"x10" Reed, (3).
24"x12" S. & B., (2).
24"x14" American, quick chg., (4).
24"x14" Lodge & S., patent head.
24"x24" Perkins, s. b. g., raising blks.
to 40", 18" chuck.
24—43"x22" McCabe double spindle.
26"x24" New Haven.
27"x14" pat. hd. L. & S., d. b. g., (4).
28"x18" New Haven, s. b. g.
28"x18" Schumacher & Boye.
New 32"x12" Pittsburgh pattern, (3).
New 36"x24" Putnam, triple grd., (8).
38"x18" American, raising blks. to 63".
38"x19" Steptoe, single back gear.
48"x27"9" Betts, triple back gear.
60"x27" Betts, triple back gear.
New 66"x30" Putnam, Dec. delivery.
71"x20" Fifield, triple geared.

LATHES—TURRET.

2"x24" Jones & Lamson, (5).
3"x36" Jones & Lamson, (5). | 6-A Potter & Johnston, (18).
New 21" Gisholt.
MILLING MACHINES—KNEE TYPE, UNIVERSAL.
No. 2 Kempsmith, 13", dividing hd.
No. 2 Kempsmith, vertical attach.
New Kempsmith.
No. 1½ Hendey-Norton.
No. 2 Kempsmith, back geared.
No. 2 new Cincinnati. | New No. 2½ LeBlond, Sept. del.
New No. 3 Kempsmith.
New No. 3 Becker, Aug. del., (2).
New No. 4 LeBlond heavy duty,
immediate.
No. 4 Cincinnati, vertical attach.

MILLING MACHINES—KNEE TYPE, PLAIN.

No. 0 Pratt & Whitney.
New No. 1 Brown & Sharpe.
New No. 1 Kempsmith, (2).
New No. 1½ American, b. g., (2).
New No. 2 Rockford. | New No. 2½ LeBlond, Aug. del.
No. 3 LeBlond.
No. 3 Cincinnati.
No. 4 Garvin.

MILLING MACHINES—VERTICAL.

New Bickett No. 0. | No. 5 Becker, (2).
New No. 4-B. Becker, (4). | No. 5 Brown & Sharpe.

MILLING MACHINES—PLANNER TYPE.

No. 2 Beaman & Smith, vertical spindle, open side.
Ingersoll slab millers, working surface of table 60x20", (2).
No. 4 Beaman & Smith, vertical spindle, open side, working surface of table
120x24", removable housing on one side.

SCREW MACHINES, AUTOMATIC.

No. 51 National Acme, (3). | No. 52 National Acme, (2).
No. 515 National Acme. | No. 53 National Acme, (2).

SHAPERS.

New 16" Springfield.
16" motor driven Rockford.
New 24" Milwaukee, (2).
New Barker 24". | New 24" Steptoe, back gear, (3).
30" Walcott, gear drive.
1 spindle 30" Norton, with 7" univer-
sal radial drill on base plate.

SECOND-HAND MACHINERY

W. F. Davis Machine Tool Company—Continued.

SLOTTERS.

New 10" Newton.
19" Betts, adjustable stroke.

120" vertical slotter, 10' stroke, two heads.

PLANERS.

24x24"x6' Gray, 1 hd. on cross rail.
24x24"x8' Cincinnati, 1 head, used 3 months.
26x26"x8' Gray, 1 hd. on cross rail.
30x30"x8' Gale, one head.
30x30"x12' Cincinnati, two heads.
36x30"x12' New Haven, 1 head.
New 36x36"x12' Bickett, 1 hd., Nov. del., additional hds. if desired, (3).
New 36x36"x12' Woodward & Powell, 2 heads on cross rail, 1 side head, October delivery, (2).
36x36"x12' Gray, 2 heads.

36x36"x14' Sellers, 4 heads.
40x40"x11' Niles, 4 heads.
Gray 42", widened to 56x42"x16, 2 heads.
48" Cleveland rotary planer.
New 48x42"x16' Bickett, 1 hd., Nov. del., additional hds. if desired, (3).
48x48"x16' Sellers, one rail head, two side heads.
50"x14' Powell, one head.
52x52"x16' Betts, 2 hds., right angle drive.
32' 6" Niles plate planer.

FOR SALE BY

**Cyril J. Bath & Co., Offices 428 Leader-News Bldg., Cleveland, O.
Warehouse 1031 West Front St.
Machine Tools in Cleveland Stock.**

BORING MILLS.

Footo-Burt two and four spindle adjustable cylinder boring machines; table feed 11", 4" spindles, cone drive, gear feed, almost new.
36" Bullard vertical boring mill, two swivel heads, four changes gear feed, 30" under rail, 3-jaw universal table chuck, very good condition, heavy rail and heads, 4-step cone drive for 3" belt; weight 8400 lbs.

DRILLING MACHINES.

20" Prentice sta. head, belt power feed, plain round swivel table, 7" spindle feed, 4-step cone drive for 2 1/2" belt; first class shape; weight 800 lbs.
20" as above, plain hand wheel and lever feed.
24" Aurora sliding head, sliding back geared, 10" belt, power feed, round swivel table, planed base; first class condition; weight 1700 lbs.
36" Bickford plain radial, back geared, cone drive, belt feed, swinging table, no tapping att.; very good condition; weight 3800 lbs.
42" Cincinnati-Bickford plain radial, single pulley drive, gear feed, box table, planed base, tapping att.; very fine condition; weight 4200 lbs.
Bement heavy coring and drilling machine, double housing for holes around 15" in steel, suitable for boring crank cheeks, etc.; excellent shape.

GEAR CUTTER.

No. 3 Brown & Sharpe automatic spur gear cutter; first class; 26" capacity.

HAMMER—FORGING.

1650 lb. Doolittle single frame, cylinder 15x10, weight 28000 lbs.; may be inspected under steam; very good condition.

LATHES.

14"x 6' LeBlond comp. rest, hollow spindle, belt feed, taper attachment; very good, (2).
18"x 8' New Haven 3' 9" centers, hollow spindle, q. c. g., very good.
18"x 8' Prentice, comp. rest, hollow spindle, quick change gears, all complete, very good.
24"x24' Pond comp. rest, loose change gears, 20' centers with double tool turning rest for shaft turning, full equipment; good.

PRESSES.

2C Stiles punch press, 12" throat, 1 1/2" stroke, 1 1/2" adj., 24"x4 flywheel; excellent condition.
764 Bliss straight side press, single crank, tie rod frame, double geared, friction clutch, 16" stroke, 12" die space, 7" shaft.
774 Bliss straight side press, single crank, tie rod frame, double geared, friction clutch, 10" stroke, 17" die space, 8" shaft.

PUMPS.

Hi-pressure Gould No. 997 triplex hydraulic pumps, 2 1/2 cylinders, 32 gal. capacity, 2000 lbs. pressure, good as new.

SECOND-HAND MACHINERY

FOR SALE BY

The Cincinnati Ball Crank Co.,

Oakley, Cincinnati, Ohio

Butt welder, Toledo type 6.
Cyclodial fan, 20", inlet 10", outlet 10".
Screw machine, single spindle automatic, 2" Gridley, motor driven.
Swaging machine, hot, No. 7 Langelier.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

ENGINE LATHES.

11"x5' Rockford, c. r.	19"x8' Sidney, c. r., d. b. g.
12"x5' LeBlond, c. r., taper att.	24"x10' LeBlond, c. r.
14"x6' Prentice Bros.	24"x10' American, geared head and taper attachment, quick change.
14"x6' Flather, c. r., taper att.	24"x12' Perkins, c. r.
15"x8' Barnes.	26"x20' New Haven, c. r., 1 1/2" hollow spindle.
16"x8' LeBlond, c. r.	50"x16' New Haven lathe.
18"x8' Morris, 3-step cone, d. b. g.	
18"x8' Greaves Klusman, turret on bed, with power feed.	

TURRET MACHINERY AND SCREW MACHINES.

No. 1 Pearson, w. f., a. c., 4".	No. 2 Garvin, w. f., a. c., 1 7-16 f. w. head.
16"x6' Star, back geared.	
12" Foster plain monitor.	

PUNCH PRESSES.

No. 2 Toledo, o. b. i., 4" str.	No. 1 V. & O., o. b. i., 1 1/2" str.
Consolidated horiz., 8" str.	No. 2 V. & O., o. b. i., 2" str.
No. 174-B, Consolidated, b. g., 48" between housings, 21"x60".	No. 19 Bliss, o. b. i., 2" str.
Lolster plate, 2" str., dbl. crank, weight 14000 lbs.	No. 2 Leader, o. b. i., 1 1/2" str.
No. 4 Crosby, solid back, 1 1/2" str.	No. 2 Ferracuto, o. b. i., 1 1/2" str.
	No. 3-A, Standard, straight sided, 1" stroke.

MILLING MACHINES.

Davis, hand bench, collet att.	Newton, heavy, plain column.
Chicago hand millers, (2).	No. 9 Kempsmith, 30" auto. feed.
No. 1 Knight vertical miller, rotary and index centers.	8" Betts slotter, 36" swing, 22" rotary table (new).
Milling machine, 48" auto. table feed, with vertical and horizontal and rotary milling atts., weight about 8000 lbs.	Whitney hand miller and index centers.
	No. 6 Garvin plain, with index centers, weight 4000 lbs.

DRILL PRESSES.

13" Excelsior, sensitive.	22 1/2" Barnes, b. g.
13" Rockford, sensitive.	3 and 4 sp. Henry & Wright.
14" Allen, sensitive.	Andrew 9-spindle straight line adjustable rail drill, 8" maximum centers, 3" minimum, cap. 1/2" drills.
14" Barnes, gear driven.	3-spindle Allen, ball bearing.
20" Barnes, gear driven.	
20" Mechanics, plain.	

SHAPERS.

16" Cincinnati, crank.	15" Lodge & Davis, crank.
24" Smith & Mills.	18" Barker, crank.

MISCELLANEOUS.

Bolt cutter, 1" Acme, Class A.	Keyseater, 1 1/2" Morton.
Brake and folder comb., 4" Niagara.	Keyseater, No. 2 Davis.
Broacher, No. 2 J. N. Lapointe.	Shears, square, 30" P. S. W., ft. p. (3).
Buffers, motor driven, (8).	Squaring shear, 10" Ryerson, with rotary traveling cutter.
Bulldozer, double end, wt. 7500 lbs.	Speed lathes, 10"x4' Star, (3).
Fender wiring machine, Yoder.	Spinning lathe, 24" Stoll.
Gear hobber, worm, 18" Grant-Lees.	Steel brakes, 4' and 8'.
Grinder, plain, 18"x96" Landis.	Toggle brake, 6' Robinson, power, for 10 gauge.
Grinder, gear cutter, Gould & E.	
Hammer, steam dr., 600 lbs. Bement.	

Large assortment of tinners' tools, folders, rolls, punches, shears, etc.; electric motors and drills; grinders, arbor presses, chucks, machinists' bench vices, time clocks, gas furnaces, foot lever presses, hack saws, air compressors, fans, blowers, bench drills, filing machines.

SECOND-HAND MACHINERY

FOR SALE BY

The Motch & Merryweather Machinery Company,
711 Lakeside Av., N. W. Cleveland, Ohio

AUTOMATICS.

No. 72 National Acme. 2" Cleveland.
 No. 52 National Acme. No. 22 New Britain, chucking.
 No. 23 New Britain, chucking. No. 33 New Britain, chucking.

BROACHING MACHINES.

No. 4 J. N. Lapointe. No. 3 Lapointe Machine Tool Co.
 No. 2 Lapointe Machine Tool Co.

BORING MILLS.

72" Niles 4-wheel boring mill. 72" Pond vertical mill.
 Betts horizontal, 4" bar. 32" Warner & Swasey turret hd. vert.

DRILLING MACHINES.

4-spindle 26" Hoefer gang. 15" Barnes.
 4' Prentiss radial drill. 10' Burke sensitive.
 5' Fosdick & Hollaway radial. 2 & 4-spindle No. 2 Avey.

GRINDERS.

No. 210 Heald wet grinder. No. 24 Bath, universal.
 6" x 32" Norton. No. 3 Oesterlein.
 10" x 50" Norton. No. 12 Gardner, duplex disc.
 19" x 30" Landis. 24" double wet tool.
 No. 1 Cincinnati, cutter. 20x1 1/2 single wet tool.
 No. 2 Brown & Sharpe, universal.

HAMMERS.

35 lb. Williams & White, power tire No. 3 Standard, 300 lb. belt drop.
 welding. 1200 lb. Bell, steam.

KEYSEATERS.

No. 1 Davis. 18" x 1 1/2" Norton.
 No. 2 Mitts & Merrill.

LATHES.

16" x 6' Lodge & Shipley pt. hd. 18" x 8' LeBlond.
 16" x 8' Walcott. 18" x 8' Bradford.
 16" x 8' Reed stud lathe. 18" x 8' Walcott, q. c.
 16" x 6' Harrington. 18" x 10' Monarch, q. c.
 18" x 8' Lodge & Shipley, three-step 18" x 12' Monarch, q. c.
 cone, d. b. g. 20" x 8' Bradford.
 16" x 8' Hamilton. 24" x 12' Pond.
 18" x 8' Lodge & Shipley, pt. hd. 30" x 14' Lodge & Shipley.

MILLING MACHINES.

No. 2 Oesterlein. No. 7-H Becker, Lincoln type.
 No. 1 1/2 LeBlond plain. No. 00 Brown & Sharpe.
 No. 2 LeBlond universal. No. 8 Pratt & Whitney, hand.

PLANERS.

24" x 24" x 6' Niles, one head. 72" x 72" x 20' Pond, 3 hds. and ext. hd.
 30" x 30" x 8' Pond, one head. 24" x 24" x 5' Blaisdell, one head.
 48" x 48" x 14' Betts, three heads. 26" x 26" x 6' Pond.

PRESSES.

No. 2 Consolidated plain inclinable. No. 5 Stiles & Parker blanking press.

SAWS.

Gust Wagner 12" cold saw. 7" high duty Paragon.

6" Atkins "Kwick-Kut."

SCREW MACHINES.

3" Foster. 4 1/2" Bardons & Oliver.
 3 1/2" Jones & Lamson.

SHAPERS.

16" Gould & Eberhardt. 14" single head Hendey traverse
 24" Cincinnati, shifting belt. shaper.

TURRET LATHES.

No. 4 Warner & Swasey, friction hd. 3" Foster.
 No. 4 Warner & Swasey plain. 21" Gisholt.
 No. 2 Warner & Swasey, hol. hex. 22" Libbey.
 16" Bardons & Oliver. 24" Gisholt.

MISCELLANEOUS.

Belt strapping mch. Builders Fdry. Variable speed countershaft, Reeves.
 Pipe machine, 12" Curtis & Curtis. small.

SECOND-HAND MACHINERY

FOR SALE BY

H. P. Gazzam Machine Co., 3200 Penn Ave., Pittsburgh, Pa.

NEW SCREW MACHINES.

No. 2 Foster, geared, friction head, with power feed to turret slide.

No. 3 Foster, plain head, with power feed to turret.

Both machines are brand new, of the very latest pattern, and have never been used. Write us for further particulars.

FOR SALE BY

The Osborne & Sexton Machinery Co., Columbus, Ohio.

LATHES.

Precision bench, Rivett.

9" to 13" Barnes, comp. rest new.

13-15-16 and 18 O. & S., h.s., c.r., new.

14" x 6" Hamilton, h. s., comp. rest.

14" x 6" Bradford, power feed turret.

15" x 6" Fox universal lathe.

16" x 6" Greaves & K., h. s., c. r., (2).

16" x 8" LeBlond, quick change.

18" x 6" Mueller, turret on shears.

18" x 8" Prentice, geared head.

18" x 8" Hamilton, dbl. bk. gr., new.

20" x 8" Prentice, geared head, (2).

20" x 8" American, geared head.

22" x 10" Hamilton, dbl. bk. gr., new.

24" x 16" Fifield, comp. rest.

26" x 10" Fitchburg, comp. rest.

26" x 10" Prentice, geared head.

28" x 12" Fay & Scott, comp. rest.

30" x 12" Fitchburg, comp. rest.

54" x 18" Pond, old style.

SHAPERS AND PLANERS.

16" Springfield, bk. grd. crank.

16" Steptoe, bk. grd. crank.

20" Smith & Mills, triple geared.

24" Smith & Mills, heavy duty, (2).

16, 18 & 24 Barker, crank, new.

20" x 20" x 4" Industrial.

36" x 36" x 14" Sellers.

44" x 44" x 12" Pond, 2 heads.

HAMMERS.

1,200 lb., steam, single leg.

300 Bliss, friction board drop.

150 Bliss, drop.

50 lb. Bradley, compact.

55 lb. Williams & White.

50 lb. Wilcox, upright.

25 lb. Schatz, helve.

PRESSES.

No. 1 Hibbard o. b. i., nearly new.

No. 31 Swain o. b. i., nearly new.

Perkins, dbl. housing, 16x24.

34 Bliss, 8500 lbs.

355 Bliss, toggle drawing, 42,000 lbs.

Hydraulic, 37" bet. uprights.

500-ton hydraulic, with pump.

Foot. 16" x 24" Niagara.

DRILLS AND RADIALS.

Henry & Wright sgl. spd., high spd.

Avey 3 spindle, high speed.

24" Fosdick radial, plain.

34" Cannedy-Otto radial, plain, new.

5" Reed-Prentice radial, plain.

6" Reed-Prentice radial, plain.

Flexible shaft, 1" hole, (2).

Sensitive 1, 2 & 3 spindle.

Sliding head 24", 26" and 28".

Quint 6-hole turret.

5" universal radial.

3" Bickford plain radial.

GRINDERS AND MILLERS.

No. 3 Davis, plain.

No. 3 Kempsmith, plain.

24x12 Bement-Miles, planer type.

16x48 Ingersol, slab.

Tool, Gleason and Wilmarth & M.

Disc, 18" double, with press.

Surface, No. 1 Wilmarth & Morman.

Landis 10" x 20" universal.

Landis, 12" x 32" plain.

No. 14 Valley City, plain, new.

Cincinnati plain, 24" x 7" x 19".

Garvin, hand and power, 15" travel.

TURRET LATHES AND SCREW MACHINES.

No. 00 B. & S., full automatic, (3).

1" Garvin hand screw machine.

14" Wood hand screw machine.

2x24 J. & L., bar equipment, (2).

No. 2 Lodge & Davis, hand.

20x8 Lodge & Davis, pr. fd. turret.

21" Gisholt turret.

24" Gisholt turret.

MISCELLANEOUS.

Band saws, metal, 30" Wright, (2).

Borer, 42" car wheel, with hoist.

Boring mill, 24" Clvd. horizontal.

Boring mill, 42" Baush vertical.

Cold saw, 8" Higley.

Crane, 10-ton Toledo, 32' span elec.

Crane, 10-ton hand hoist, 32' span,

Cut-off machine, 3" Davis.

Gear cutter, B. & S. No. 13.

Keyseater, Baker Bros. 14" keyways.

Motors, 1 to 50 h. p., 220 v., 3 phase.

Pipe machines, 2" & 4" Oster.

Punch & shear, No. 6 L. & A., 1".

Punch & shear, 2" x 12", 12" throat.

Riveter, 1/2" Shuster, 21" throat.

Squaring shear, 30 & 36", 20 guage.

Tapper, Garvin and P. & W.

SECOND-HAND MACHINERY.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

- | | |
|------------------------------------|---|
| 20"x6' New Haven, comp. rest. | 18"x10' Flather, c. r., t. a., q. c. r. |
| 18"x10' Flather, c. r., taper att. | 18"x8' LeBlond, compound rest. |
| 22"x8' Flather, c. r., standard. | 24" raised to swing 32"x12' bed, |
| 26"x16' Bridgeford, patent head. | LeBlond, compound rest. |
| 8" Hardinge Bros. precision lathe. | 12"x5' F. E. Reed, r. & f. r. |
| 18"x6' Whitcomb Blaisdell, c. r. | 16"x8' American, c. r., t. att. |
| 18"x8' Whitcomb Blaisdell, c. r. | 16"x6' Lodge & Shipley, comp. rest. |
| 16"x8' Perkins, p. r. | 24"x10' Schumacher & Boye, q. c. |

TURRET LATHES.

- | | |
|--|-------------------------------------|
| 18" Lodge & Davis, gear feed head,
automatic chuck. | No. 1 Warner & S. hol. hex. turret. |
| 14" Lodge & Davis, plain head. | 24" Davis turret boring & chucking |
| 21" Gisholt, belt driven, t. a. | lathe, with vertical forming at- |
| | tachment. |

DRILLING MACHINES.

- | | |
|--|--|
| 14" Knight drilling & milling, cir-
cular milling attachment. | 60" Alfred Box plain radial. |
| 12" Rockford upright. | No. 175-5' arm Cincinnati-Bickford |
| 36" Prentice Bros. standard sl. hd. | wall type plain radial. |
| 22" sliding head, w. & l. feed. | 14" Taylor & F. upright sensitive. |
| 28" sliding head, b. g. | 3" American hi-spd. sensitive radial. |
| 10-sp. Quint turret drill. | 2' Gang plain radial, universal table, |
| 5-sp. Detroit, semi-automatic. | cone drive, tapping att., (2). |
| 6-sp. Woodward & Rogers, sensitive. | Beaman & Smith double spindle |
| 4-sp. Garvin, sensitive. | horizontal boring. |

SCREW MACHINES.

- | | |
|--|----------------------------------|
| 2" Cleveland full automatic. | No. 00 Brown & Sharpe automatic. |
| No. 1 Bardons & Oliver plain head
turret. | 1" Hartford full automatic. |
| | 2" Hartford full automatic. |

MILLING MACHINES.

Special horizontal slab miller, 66"x45" movable heads.

PLANERS.

- | | |
|-------------------------------|------------------------|
| 22"x22"x 5' Gray, one head. | 27"x24"x 7' New Haven. |
| 22"x24"x 5' Putnam, one head. | |

GRINDERS.

- | | |
|---------------------------------|--|
| Norton 10"x50", plain cylinder. | Type "DE" Hisey-Wolf internal. |
| Gisholt tool grinder. | Greenfield univ. cutter & reamer, (2). |
| Warner & Swasey cock grinder. | Wells bench cutter and reamer. |
| 20" Whitney wet grinder. | No. 60 Heald cylinder grinder. |

HAMMERS.

- | | |
|--|-----------------------------------|
| Coffman, post, power dr., 25 lbs., c. s. | 400 lb.-4 poppet Etna Machine Co. |
| 100 lb. Cady, belt drop., c. s. | rope drop hammer. |
| 25 lb. Bradley, upright helve. | |

RIVETERS.

- | | |
|--|---|
| 4" Shuster, elastic rotary blow. | 1/16" Adt, elastic rotary blow. |
| No. 81-A Grant bench type rivet
spinning machine. | 11 1/2" throat Giant rivet spinning
machine. |

GEAR CUTTERS.

- | | |
|---|-----------------------------------|
| Schuchardt & S. LeJeune auto. gear
tooth rounding. | Dwight Slate auto. pinion cutter. |
|---|-----------------------------------|

MISCELLANEOUS.

- | | |
|--|--|
| Bolt cutters, 1" Wells, h. & p., solid
sp., and 1 1/2" Wells, solid die, sgl. | Keyseater, Morton, draw stroke. |
| Broacher, No. 2 Lapointe. | Keyseater, Mitts & Merrill, square
frame. |
| Flywheel presses, Waterbury, o. b. pl. | Thread miller, 6"x18" Cleveland. |

SECOND-HAND MACHINERY

FOR SALE BY

McMullen Machinery Co.,

Grand Rapids, Michigan

Blower, No. 2 Garden City.
Bolt cutter, No. 2 Acme.
Drill, No. 2 Quint 6 sp. turret.
Drill, 28" Barnes, sl. head, p. f., b. g.
Drill, 14" Sterling, with taper.
Drill, No. 1 Avey 3 sp. sensitive.
Drill, Henry & Wright 3 sp. sens.
Furnace, No. 1 Stewart, oven.
Grinder, Eames, drill.
Grinder, 12x20 Landis plain.

Hammer, 60 lb. Rochester, helve.
Hammer, Quickwork, power, (2).
Lathe, 24"x24" Fifield, engine.
Lathe, 34"x12" Parmalee, engine.
Miller, No. 4 Kempsmith, univ.
Miller, No. 3 Garvin, hand.
Miller, No. 1 B. & S., universal.
Riveter 3" Shuster, (2).
Shear, No. 2A Quickwork rotary.
Turret, 16" Oliver p. f., a. c. & w. f.

Send for complete list.

FOR SALE BY

Broadway Machinery Co.,

236-238 Broadway, Cincinnati, Ohio

Bolt cutter, Landis, 3 hds.
Boring mill, 32" Bullard, turret hd.
Drills, upright, 22", 24", 28" and 40".
Gear cutter, No. 13 B. & S. univ.
Gear cutter, 36" G. & E., spur-only.
Gear cutter, No. 1 Whiton.
Gear generators, 16" Bilgrim, (2).
Gear hobber, 24" S. & S.
Grinder, universal cutter, No. 1 1/2 Cincinnati.
Grinders, Bath, (2).
Grinder, No. 24 Landis.
Grinders, planer type, B. & S., (2).
Grinder, univ., No. 3 B. & S.
Lathes, 12" to 50" swing.
Miller, plain, no back gear.

Miller, vert., Becker-Brainard.
Miller, univ., No. 2 B. & S.
Planer, 44"x44"x16" Niles, 1 hd.
Press, No. 21 Bliss, inc.
Press, No. 51 Ferracute.
Presses, board drop, 100 and 400 lbs.
Punch, No. 4 L. & Black, sgl. end.
Radial, drill, 4" full universal.
Radial, drill, 5" Cincinnati-Bickford.
Screw mchs., Nos. 2 & 3A W. & S.
Screw mch., No. 2 Pratt & W.
Shapers, 16" and 20" Smith & Mills.
Shaper, 20" Stockbridge, b. g. crank.
Shaper, 20" Steptoe, geared.
Shaper, 16" Steptoe, b. g. crank.
Turret, 21" Gisholt.

FOR SALE BY

E. L. Esley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

DRILL PRESSES.

No. 3 Avey high speed ball bearing, drills on column, fine shape.
No. 1 Baker Bros. high speed drill.
1 spindle H. & W. high-speed.

25" W. F. & John Barnes.
3 1/2" Prentice Bros. plain radial.
36" Bickford plain radial.
4" Mueller plain radial.

GRINDERS.

No. 3 Garvin cutter and surface gr.
10"x25" Bath universal grinder.
10"x50" Norton plain.

9"x20" No. 2 Bath univ. grinder.
4"x30" P. & W. sizing grinder.
12"x32" Landis plain grinder.

LATHES.

30" Niles double head axle lathe.
16"x8" Hendy, quick change gear.
16"x8" Prentice Bros. taper att.

14"x 6" Lodge & Shipley, q. c. g. (2).
14"x6" Porter.
9"x 4" Star.

SCREW MACHINES.

8" Cleveland automatics, (2).
14" Drees, friction head.
1 1/2"x9" Acme, friction head.
No. 6 W. & S. 2 1/2" cap., fric. head.

No. 2 1/2 Garvin 1 7-16" cap., fric. hd.
3" Foster-Kimball, plain head.
3" Smurr & Kamen, plain head.

MISCELLANEOUS.

Brake, 7" Ohl, up-and-down pattern.
Center chucks for ball case grinder.
Filer, No. 2 Cochrane-Bly.
Gear cutter, No. 13 B. & S. auto.
Hand wheel turning attachment.
Keyseater, No. 0 Mitts & Merrill.
Miller, univ., No. 14 Brainard.
Pipe machine, 3" Stover.
Planer, 24"x24" x5" New Haven.

Planer, 40"x40"x10" P. & W.
Polisher, No. 4 Diamond, motor driven, 230 v., d. c.
Punch & shear, No. 8 Whiting, single end.
Shaper, crank, 16" Barker.
Shaper, 27" Walcott.
Turret lathe, 24"x24" W. & S.
Valve millers, for brass.

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.

LATHES.

13"x 6' South Bend, h. s., compound rest, new	\$ 267.50
15"x 8' South Bend, h. s., compound rest, new	360.00
16"x 8' South Bend, h. s., compound rest, new	430.00
18"x 10' South Bend, h. s., compound rest, new	570.00
17"x 8' Sidney, double back geared, quick change gear, hollow spindle, compound rest, new	980.00
19"x 10' Sidney, double back gear, quick change gear, hollow spindle, and compound rest, new	1090.00
14"x 8' American, q. c. g., h. s., compound rest	575.00
18"x 8' Reed, s. s., p. f.	275.00
17"x 8' Fifeild, hollow spindle, plain rest	275.00
20"x 8' Oakley, d. b. g., h. s., comp. rest, not screw cutting, (4), each	550.00
36"x 16 1/2' Fitchburg s. s., compound rest	1000.00
38"x 14' Fitchburg, s. s., compound rest	1500.00
12" Warner & Swasey speed lathe	40.00

DRILLING MACHINES.

No. 1 Burke, bench, sensitive, 3/4" cap., with chuck; new (3), each	\$ 17.50
No. 28 Western Chief, bench, sensitive, 3/4" cap.; new (2), each	25.00
14" Excelsior, sensitive, 3/4" cap.	57.50
20" Barnes, square base, w. & l.	65.00
20" Champion, sq. b., lever feed; new (3), each	100.00
20" Champion, sq. b., wheel and lever feed; new (3), each	110.00
20" Silver, square base, b. g., p. f., new	135.00
26" Aurora, sliding head, back geared and p. g. f.; new	325.00
24" Bickford, sliding head, wheel and lever feed	100.00

SHEARS.

No. 11-A Badger, alligator, cap. 3/4"x3	\$ 65.00
No. 15-A Niagara ring and circle shear, head only	75.00

SAWS.

Bryant No. 10, Q. & C. cold saw, 20" saw	\$ 150.00
No. 2 Atkins Kwick-Kut hack saw	25.00

BRAKES.

4' Dreis & Krump, cap. 16 ga.; new	\$ 70.00
6' Dreis & Krump, cap. 18 ga.; new	117.50
6' Robinson, cap. 20 ga.; (2), each	100.00
8' Robinson cornice brake	155.00
8' Robinson, heavy type, power	300.00

COMPRESSORS.

6x6x6 Laidlaw-Dunn-Gordon, steam; cap. 30 cu. ft.	\$ 125.00
10x10 Star, vertical, with engine, double acting; cap. 120 cu. ft.	450.00

MISCELLANEOUS.

Air hoist and trolley, 12x48, vertical	\$ 60.00
Blower, No. 2 Root rotary, with engine	250.00
Blower, No. 9 Sturtevant	90.00
Blower, pressure, No. 7 Sturtevant on base	75.00
Blower, volume, No. 9-B Buffalo	75.00
Bolt cutter, Acme 1 1/2" double head	300.00
Buffing lathe, No. 5 Blount, and c. s., new	30.00
Chucks, Sweetland 10", 4-jaw independent, new	30.00
Chucks, Simplex, 12", 4-jaw independent, new	35.00
Chucks, Simplex, 14", 4-jaw independent, new	40.00
Chucks, Sweetland, 4", 3-jaw scroll, rev. j., new	21.00
Grindstone frame, iron, for 36x6 stone	25.00
Hammer, helve, 60 lb. Knowlton	250.00
Milling machine, No. 6 Whitney, hand	175.00
Pipe machine, Borden, belted; cap. 2"	175.00
Planer, 29"x25"x7' High St., F. & M. Co., single head	550.00
Shaper, 15" crank, with vise	275.00
Shaper, 20" Smith & Mills	700.00
Tire setter and pump, 60" Hercules	600.00

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

149 Broadway, New York

Boring mill, 42" Niles car wheel.
Hammer, steam, 2500 lbs. Bement, single frame.
Lathe, 18"x 8' LeBlond, c.r., cross fd.
Lathe, 20"x 8' American, c.r., cr. fd.
Lathe, 21"x 8' LeBlond, c.r., cross fd.
Lathe, 20"x 6' Blaisdell, c.r., cross fd.
Lathe, 20"x 8' Blaisdell, c.r., cross fd.
Lathe, 26"x 16', shell boring.
Lathe, 40"x 12' Fitchburg, c.r., cross fd.

Lathe, 40"x 18', shell boring.
Lathe, 50" Bement, dbl. hd., wheel.
Miller, 24"x 14' Bement, slab.
Miller, 42"x 14' Newton, slab.
Miller, 20" Sellers, vertical.
Nut tapper, 1 1/2" six spd. Acme.
Planer, 30"x 30"x 6' Pond, 1 head.
Punch, No. 3 Long & Allstatter, spacing.
Turret lathe, 32" Grant.

FOR SALE BY

Federal Machinery Sales Co.,

8 N. Jefferson St., Chicago, Ill.

Rightly Rebuilt Machine Tools.

DRILLING MACHINES.

Canedy-Otto post drill.

Silver 20" wheel and lever and power feed. (15).

24" Hoefler, sliding head, back geared, power feed.

2-spindle Barnes 20", back gears, power feed, one spindle tap. attachment.

2-spindle Dwight-Slate sensitive drill.

3-spindle Francis Reed sensitive drill, lever feed.

4-spindle Barr sensitive drill, lever feed.

4-spindle F. B. Redington sensitive, lever feed.

GEAR CUTTERS AND HOBBERS.

22"x 5"x 6 pitch Gould & Eberhardt, spur and bevel.

34" Whiton automatic spur gear cutter.

GRINDERS.

16"x 66" Landis plain, crank grdg. attachment, complete, countershaft.

No. 2 American automatic surface grinders, (3).

Oakley No. 2 universal cutter and tool grinders, (4).

LATHES.

14"x 8' Ryerson, h. s., compound rest, power cross feed.

16"x 8' South Bend, h. s., compound rest, power cross feed.

16"x 8' Lodge & Davis, h. s., c. r.

16"x 8' Porter, h. s., c. r.

17"x 8' Cincinnati, 5-step, s. b. g., c. r., h. s., fine condition.

17"x 8' National, q. c. g., 4-step, s. b. g., c. r., h. s., fine shape.

18"x 8' South Bend, 4-step, s. b. g., c. r., h. s.

18"x 8' Hamilton friction geared head eng. turret lathe, new.

MILLING MACHINES.

Pratt & Whitney Lincoln type millers, (2).

No. 3 Aurora plain, 32" table feed, power long. feed, hand cross.

No. 13 Brown & Sharpe plain, s. b. g., oil pump and piping.

Warner & Swasey 4-spindle valve miller, good as new.

No. 1 1/2 American universal, complete, good condition.

PRESSES.

Cleveland No. 5, inclinable, complete, equiv. No. 3 American Can., 4" stroke.

C1 Ferracuta, open back, inclinable, complete.

Royersford foot-presses, complete, (5).

SCREW MACHINES & TURRET LATHES.

3"x 26" Jones & Lamson, geared head, with bar equipment.

Pond 21" heavy duty, arranged for motor drive.

SHAPERS.

20" Hendey friction shaper.

MISCELLANEOUS.

Air drill, Ingersoll-Rand, good as new.

Cold saw, 3" Smith & Post.

Riveting hammer, High Speed Hammer Co. No. 4A. cap. 1/4 to 1/2" rivets.

Splitting shear, Rock River D14, new.

Squaring shear, Bertsch 5', foot power, 15" gap.

Write for complete list.

SECOND-HAND MACHINERY

FOR SALE BY

A. D. White Machinery Co., • 108-114 N. Jefferson St., Chicago.

NEW MACHINES.

Drill presses, 20" Lindgren, all geared, power feed.
Drills, sensitive, 2, 3 and 4-spindle style "A" Barr.
Engine lathe, 14"x6" Carroll-Jamieson.
Engine lathes, 18"x6" Canedy-Otto.
Engine lathes, 18"x8" Mueller.
Grinders, drill, LaSalle and Eames.
Grinder, cutter and reamer, Acme.
Grinders, No. 1 La Salle, plain and surface, (3).
Milling machines, No. 1½ Valley City universal and plain.
Shapers, 15", 16", 20" and 24" Kelly.
Shapers, 21" Averbek, (6).

SECOND-HAND MACHINES.

SCREW MACHINES.

3" LaVigne.	1" Cleveland, friction jigger feed.
7-16" Cleveland, friction feed.	1½" LaVigne, (2).
8" Cleveland, friction feed.	2" Hartford.
8-1" Cleveland, jigger feed.	2½" Hartford.
1-1" Cleveland, friction feed.	8" Cleveland, semi-automatic.
1" Hartford, (3).	No. 2 Hercules, hand, new.

DRILL PRESSES.

23" Bickford, sliding head.	3-spd. American.
32" Bickford, sliding head.	4-spd. Dwight Slate.
Single spd. H. & W. high speed.	8 spd. Valley City mult., No. 1 taper.
2-spd. Rockford L. & D. Co.	12 spd. Baush multiple, No. 2 taper.

ENGINE LATHES.

10"x54" Davis.	26"x25" Blaisdell.
14"x 6" Monarch.	28"x25" Putnam.
16"x12" Beaman & Smith.	30"x14" Blaisdell.
24"x10" Putnam.	32"x14" Pond.
28"x10" Fifeid.	38"x20" New Haven.

PUNCH PRESSES AND PUNCHES AND SHEARS.

No. 4 Max Ams, o. b. i.	No. 204 Toledo overhanging press.
No. 33 Crosby, open back.	No. 21-H horn presses, (2).
No. 29 Bliss, gang, dbl. action.	No. 4 L. & A., agl. end punch, 8" tr.
No. 36 Consolidated, arch, 7" stroke.	19" throat geared punch.

GRINDING MACHINES.

18" Ransom, disc.	2" No. 7 Sterling, floor.
Yankee Style "B", drill.	2" Springfield, double wheel, floor.
1½" Norton, floor, (2).	Springfield, dbl. wheel, water.
1½" Safety emery wheel, floor.	No. 2 Leland & F. water.

MISCELLANEOUS.

Boring mch., car wheel No. 55 Industrial.	Oil gas generator, No. 3 American.
Bolt cutters, 1½" & 2" Acme, agl. hd.	Planer 35"x35"x12" Niles, 2 heads.
Die filing machine, Simplex.	Riveters, ¾" and 1" Schuster.
Gas engine, 35 h. p. Columbus.	Saw, band, Williamson, tilting.
Hammers, 40 and 60 lb. Bradley.	Saw, cold, Bryant, 19½" dia. saw.
Hammer, 500 lb. Sandage, lift.	Saw, cold, No. 5½ Nutter-Barnes.
Keyseater, No. 00 Baker.	Shear, slitting, No. 380 Toledo, 16 ga.
Keyseater, 36" Morton portable.	Shear, sq., No. 236 Niagara, 14 ga.
Miller, slab, 22", Eynon-Ingersoll.	Time clock, No. 14 Cincinnati.

SECOND-HAND MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

119 N. Third St., Philadelphia, Pa.

Lathe, 16"x6' Cincinnati.
Lathe, 16"x9' Lehman.
Lathe, 18"x8' Cincinnati.
Lathe, 21"x14' New Haven.
Miller, Kempsmith univ., 36"x8' tbl.
Miller, universal, No. 2 Rockford
heavy duty, vertical attachment.
Press, Slaysman No-4A, (2).

Press, drawing, DDG-56 Ferracute,
straight column, double action, wt.
14,000 lbs.
Shaper, 15" Kelly.
Shaper, 16" Smith & Mills, pl. crank.
Shaper, 20" Smith & Mills.
Shaper, 20" Leisy Patton.

FOR SALE BY

Chas. N. Braun, . . . 705 E. Lewis St., Fort Wayne, Ind.

ENGINE LATHE.

18" swing x 10' bed engine lathe, Star Tool Co., Providence, R. I., rod and screw feed to carriage, power cross feed, compound rest, 1 5/16" hollow spindle, 4-step cone, center leg; complete with face-plate, steady rest, countershaft; 17 very good change gears, lathe dogs, wrenches, two tool holders, and one 12" 4-jaw independent chuck. Price only \$425 f. o. b. cars Ft. Wayne, Ind., subject to prior sale.

TURRET SCREW MACHINE.

16" Pratt & Whitney geared friction head turret screw machine, power feed to turret, h. s., \$800.

FOR SALE BY

Swind Machinery Co.,

Widener Bldg., Philadelphia, Pa.

For Immediate Delivery.

Air forging hammers, No. 3 Nazel Beche, capacity 5x5", used, (4).
Air forging hammer, No. 4 Nazel Beche, capacity 7x7", used.
Grinder, universal, No. 1 Landis.

NEW MACHINES.

Drill press, 3-spindle Kern, ball bearing.
Grinders, universal cutter and reamer, high grade, (2).
Grinder, universal profile, Fischer.
Lathes, 24"x14' quick change gear, with 3-step cone and dbl. back gears, (6).

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York

Located at Chicago, Boston and New York

LATHES.

12"x 5' speed lathe.
15"x 7' speed lathe.
16"x 8' VonWyck, quick change.
32"x12' Pond, 220 v., d. c. motor dr.
36"x17' Pond, trip, geared., q. c.
No. 2 Bement double axle lathe.
42" Niles double car wheel lathe.
21"x48" Harrington gap bor. lathe.

TURRET AND SCREW MACHINES.

4" four-spindle old style Acme automatic screw machine.
4" Style "B" Spencer single turret automatic screw machine.
2"x26" Pratt & Whitney turret lathe.

DRILLING MACHINES.

13" friction, sensitive.
60" Niles, gooseneck.
3' Grant combined radial drill and boring machine.
3 1/2' Bement, plain radial.
4' 6" Barr plain radial.
Prentice portable radial.
Four-spindle gang drill.
No. 12 P. & W. multiple drill, square head, 10 spindles.
No. 13 Pratt & Whitney multiple, 1/2" capacity, 12 spindles.
No. 10 Pratt & Whitney multiple, 1 1/2" capacity, 10 spindles.

MISCELLANEOUS.

Boring mch., horiz., Kelly, 2" spdl.
Gear cutter, 36" No. 3 Newark.
File sharpener, American.
Punch, single, Perkins, cap. 1/2" in 1/4".
7" throat.
Punch & shear, double, Huntington, cap. 1/2" in 1/4", with 18" and 24" throats, arr. for motor drive.
Saw sharpener, Espen-Lucas.

SECOND-HAND MACHINERY

FOR SALE BY

Western Mch. Co., —C. H. Norton— 112 W. 3rd St., Cincinnati, O.

LATHES.

17" x 6' LeBlond, taper, \$650.

24" x 14' Steptoe, \$500.

19" x 7' Morris hvy. duty, q. c. \$950.

15 Other lathes, 12" to 20".

Davis-Egan 2" turret chucking, \$450.

13" Turret lathes, (4).

MILLING MACHINES.

No. 2 Cincinnati plain, \$850.

No. 2 Cincinnati universal, \$950.

No. 12 Brainard universal, \$1,000.

No. 6 Fellows gear shaper, \$1,200.

DRILLING MACHINES.

3' Hisey radial, \$525.

30" Bickford, sliding head.

24" Aurora, sliding head.

22" Aurora, sliding head.

20" Barnes, stationary head, (2).

MISCELLANEOUS.

Air compressors, all sizes.

Generator, 150 k. w. Westinghouse,

for 250 v., d. c., or 250 v., 2 ph.,

a. c. current, \$1,800.

Motors, 10 h. p., (2).

Also one 72" x 18" high pressure boiler, pump, air hammers and other miscellaneous machinery.

Planer, 36" x 36" x 12' old style, \$650.

Press, No. 4 Willard incl., \$350.

Shapers, 20" Hendey geared (2),

each \$300.

Turret ck'g. mch., vert., 26" Gray.

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.

Good Used Equipment.

ELECTRIC TRAVELING CRANES.

50-ton Niles, 61' 7" span, 550 v., d. c., 10-ton aux.

25-ton Browning trolley, 3 motor, 220 volts, d. c.; will supply girders length required.

5-ton Case, 47' span, 3 motor, 220 volt, d. c.

21, 14 and 4½ h. p. Shaw crane motors, 220 v., d. c.

10 h. p. Akron crane motor, 220 v., d. c.

Hand cranes, 2 ton, 22' span.

Hand crane, 10 ton, 65' span.

Hand crane, 20 ton, 29' 6" span.

MISCELLANEOUS.

Angle shear, double, No. 2 H. & J., cap. 6x8x1½".

Bending roll, 6', drop end, rolls 6½" and 8".

Bending and straightening machine, 24" gap, 9" jaw.

Cold saw, Newton, 26" blade.

Drill, No. 3 Foote-Burt, 8 spindle, cap. 1½".

Press, No. 19 Avery, o. b. i., 2" stroke.

Press, No. 67 Stoll, 3" and 4" stroke, 13,000 lbs.

Press, trimming, No. 11 Perkins, 4" stroke.

Press, No. 65 Toledo, cam, 7" and 4" stroke, 13,000 lbs.

Pump, triplex, 3½" x 10" Deane, fig. 1516, belt driven.

Pump, 4" x 1" Deane, fig. 889, belt driven.

Pump, triplex, 10" x 10" Gould, belt driven.

Punch, hand, No. 5-B New Doty, cap. 4x4", 15" throat.

Punch press, No. 225 Adriance, 2" stroke, geared.

Punch and shear, Coulter & McKenzie, cap. 3" x 1½" spring steel.

Punch and shear, Cleveland, cap. 1" x 1½", 28" throat.

Punch and shear, No. 3 H. & J., cap. 1½x1, 36" throat.

Punch and shear, steam driven, cap. 3x1½", 48" throat.

Riveter and upsetter, 1½" cap. Acme, with side shear.

Rolling mill, 1 stand, 2 high, rolls 10" diam.

Shear, No. 2 Farrell alligator, cap. 1" square.

Shear, lever, dbl., cap. 2" square.

Shear, No. 6 Perkins guillotine, cap. 2½" square.

Shear, Lennox rotary bevel, cap. ½" plate.

Shear, Lennox rotary splitting, cap. ½" plate.

Shear, splitting plate, 18" blade, cap. ½".

Wall drills, 15' reach.

Quick shipments—good condition.

SECOND-HAND MACHINERY

WANTED BY

Morris Benjamin, • • • **212 Centre St., New York City**

ELECTRIC MOTORS.

I want to buy electric motors, alternating and direct current, from $\frac{1}{2}$ h. p. to 500 h. p., 1-2-3 phase, and 220 volt direct current; send list and prices; quick action.

FOR SALE BY

J. L. Osgood, • • •

45 Pearl St., Buffalo, N. Y.

Chuckling lathe, 21" P. & J.
Chuckling lathe, 24" Davis.
Lathe, eng., 9" Barnes.
Lathe, eng., 15"x8" Porter, and ck.
Lathe, 17"x8" Blaisdell, and chuck.
Lathe, 24" raised to 34", Fifield 12" bed, chuck.
Piston and ring machine, Gridley automatic, motor drive.

Screw machine, hand, No. 1 Foster.
Screw machine, hand, $\frac{1}{4}$ " B. & S.
Screw machine, hand, 1" P. & W. hex. turret.
Screw machines, No. 5 Warner & S.
Spur gear testing mch., Gleason.
Squaring shear, foot, 30" Niagara.
Time recorder, International, 200 numbers.

FOR SALE BY

Brownell Machinery Co., •

11-13 Eddy St., Providence, R. I.

Drills, 20" back gear, power feed upright, new, (5).
Drill, 24" Sibley, adjustable hd., new.
Gear cutter, No. 13 B. & S. auto.
Gear cutter, 30" Newark automatic.
Gear cutter, 30" old-style Brainerd.
Gear generators, 12" Gleason, single tool, (2).
Grinder, 5"x48" Pratt & Whitney.
Grinder, universal, No. 2 Bath.
Grinders, universal, No. 1 Landis, new, (4).

Lathe, 16"x6" Reed, r. and f., (4).
Lathe, 16"x7" Oliver, new.
Lathe, 18"x8" Porter.
Lathes, 18"x8" Davis, d. b. g., (3).
Lathe, 18"x10" Rahn-Larmon, new.
Lathe, 18"x12" Rahn-Larmon, new.
Lathe, 22"x10" Nicholson & W.
Milling machines, Reed, plain, (2).
Milling machines, thread, Lees-Bradner, (2).
Milling machines, vertical, No. 4-B Becker, new, (2).

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. 6th St.,

St. Louis, Mo.

LATHES.

15"x 5' Prentice.
16"x 8' American, q. c.
18"x 8' Forsaith.

16" Fox Monitor.
24"x12' Forsaith.
50"x20' New Haven.

DRILLING MACHINES.

24" Aurora.
24" Bickford.

28" Bickford.

SHAPERS AND PLANERS.

14" Lodge & Davis crank shaper.
20" Lodge & Davis geared shaper.

24"x24"x 6' Lodge & Davis planer.
36"x36"x10' Pond planer.

AIR COMPRESSORS.

6"x6" belted.
8"x8" belted.

12"x12"x12" steam driven.

HAMMERS.

25 lb. Bradley.
40 lb. Bradley.

50 lb. Little Giant.
130 lb. Justice.

MOTORS AND GENERATORS.

50 h. p., 125 volt, d. c. motor.
55 h. p., 250 volt, d. c. motor.

150 k. w. 250 volt, d. c. generator.
Electric elevators complete, (2).

MISCELLANEOUS.

Cold saw, No. 2 Espen Lucas.
Grinder, plow share, No. 35.
Hydraulic forming press, 20-ton.

Spot welder, 32"
Stake punch, 30"
Stake punch, 60".

SECOND-HAND MACHINERY

FOR SALE BY

Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.

Bolt cutters, $\frac{1}{2}$ " Acme.
Drills, 10" Barnes friction, (5).
Drill, 14" Champion, geared.
Drill, 20" Champion, p. f.
Gear cutter, Walcott.
Hammer, 25-lb. Mayer, upright.
Lathe, 12"x6" Bradford engine.
Lathe, 14"x6" Flather engine.
Lathe, 15"x5 $\frac{1}{2}$ " No. 1 American, brass.
Lathe, 16"x8", Greaves-Klusman.

Planer, 16"x16"x3' Whitcomb.
Press, No. 32 Toledo.
Riveter, No. 530 Prouty.
Riveter, $\frac{1}{2}$ " Shuster.
Screw machine, 16"P. & W., g. f. h.
Screw machine, No. 4 Warner & Swasey, hand.
Shaper, 16" Hendey.
Shaper, 20" Smith & Mills.
Tire welder, No. 4 L. & A.

New tools for any requirement.

FOR SALE BY

Badger-Packard Mch. Co., 133-139 W. Water St., Milwaukee, Wis.

LATHES.

11"x5' Star No. 30-P.
12"x4 $\frac{1}{2}$ ' Martin Fox.
13"x5' Le Blond, back geared.
12"x5' Prentice, single b. g.
13"x7' Shepard.

16"x8' LeBlond, 4-st. cone, s. b. g.
16"x8' Flather, 4-st. cone, o b.g., q.c.
20"x8' Walcott, single b. g.
20"x10' Blaisdell, c. r., solid sp.

MISCELLANEOUS.

Drill press, 20" Davis.
Grinder, cutter, Garvin.
Grinder, water, 20" Diamond No. 6 $\frac{1}{2}$.
Hammer, drop, 100 lbs.
Oven furnace, No. 26 Stewart gas burners.
Shaper, crank, 14" Steptoe.

Pipe mch., No. 1 Merrill, complete with c. s., $\frac{1}{2}$ " to 2" capacity.
Planer, 26"x26"x6' Pond, one head on cross rail.
Shaper, 16" Potter & Johnston, motor driven.

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

LATHES.

28"x13' Harrington.
24"x10' new Carroll-Jamieson.
20"x10' Bullard, t. a.
20"x10' Blaisdell.
20"x10' Fitchburg.
19"x10' Rahn-Mayer.
16"x8' Draper.
17"x8' new National, q. c. g.

19"x8' new Sidney, d. b. g., q. c. g., swing 21" over shears, (4).
17"x8' new Sidney, d. b. g., q. c. g., swing 19" over shears.
15"x8' Carroll-Jamieson, new.
14"x10' Prentice, t. a.
13"x7 $\frac{1}{2}$ ' Carroll-Jamieson, new.
13"x5 $\frac{1}{2}$ ' Carroll-Jamieson, new, (2).

SCREW MACHINES.

2" Cleveland automatic.
24" Gisholt, motor driven.
14"x5' Lodge & Shipley, wire feed.

14"x5' Warner & Swasey, Fox.
No. 2 Garvin.
 $\frac{1}{2}$ " P. & W., hand.

MISCELLANEOUS.

Drill, D-4 Colburn high duty.
Drills, 20" Rockford, high duty, (3).
Drill, 20" Superior, new.
Drill, 25" Superior, slid. hd., ne
Drill, 28" Superior, slid. hd., new.
Grinder, universal, No. 3 B. & S.
Grinder, universal, 10"x20" Bath.
Hammer, steam, 800 lb. Bement.
Hammer, belt, 250 lb. L. Giant, new.
Hammer, belt, 100 lb. L. Giant, new.
Hammer, belt, 50 lb. L. Giant, new.
Miller, plain, No. 1 $\frac{1}{2}$ American, new.
Miller, plain, No. 3 Kempsmith.

Miller, universal, No. 3 LeBlond.
Miller, universal, No. 4 Cincinnati, vert. att., power fd., rotary table.
Miller, hand, No. 0 Steptoe, new.
Pipe machine, 4" Williams, new.
Planer, 36"x36"x10' Pond, 2 hds.
Radial drill, 36" Dreses.
Radial drill, 42" Baush.
Radial drill, 48" Harrington.
Shaper, 15" Bement, traveling head.
Shaper, 20" Cincinnati, back geared.
Shaper, 24" Flather, back geared.
Shaper, 24" new Steptoe, back grd.

SECOND-HAND MACHINERY

FOR SALE BY

Neldow & Payson Co.,

Automatics, 4" to 2".
Boring and turning mills, 41" to 100".
Drills, multiple spindle and sensitive.
Grinders, plain, universal and cutter.
Grinder, Pratt & Whitney vertical.
Hammers, steam, 400 to 1500 lbs.
Lathes, 9" to 90" swing.
Lathes, 2" Jones & Lamson.
Planers, 24" to 72" wide.
Side Milling Cutters, inserted High Speed Steel Cutters. These Cutters

9 So. Clinton St., Chicago, Ill.

have been used, but are in good condition. Cutters similar to No. 307 P. & W. catalogue, page 106:—

Diam.	Face.	Hole.
4 — 5 "	1 1/2 "	1 1/2 "
1 — 5 1/2 "	1 "	1 "
8 — 6 "	1 "	1 1/2 "

End Milling Cutters, inserted High Speed Steel Cutters. Similar to cutter shown on Brown & Sharpe catalogue, page No. 274:—

Diam.	Face.	Hole.
4 — 9 "	1 1/2 "	4 "
4 — 12 "	3 "	2 1/2 "

FOR SALE BY

Dale-Brewster Machinery Co., Inc.,

547 W. Washington Blvd., Chicago - **30 Church St., New York**

Automatics, 2 1/2" and 2 1/4" Cleveland, used.
Cutter relieving machines.
Drills, Nos. 1 and 2 Langelier, h. s., b. b., sensitive, new.
Drills, 14" U. S. sensitive.
Drills, D-4, D-3 and D-1 Colburn, used.
Drills, back geared, power feed.
Drill, multiple 12-spindle Baush, used.
Drilling and boring machines, heavy duty horizontal.
Hammer, drop, 3000 lbs.
Lathe, 18"x10" Cisco, new.
Lathe, 20"x7'6" heavy duty plain turning, new.
Press, D-75 Ferracute.
Profile grinder, Cleveland.

FOR SALE BY

R.W. Wells Machinery Co., 547 W. Washington Blvd., Chicago, Ill.

New and Used Machines for immediate delivery.

LATHES.

Extra heavy projectile lathes, for 3" shells, cap. draw-in collets 4".
11"x4'6" Davis lathe.
12"x5' LeBlond standard eng. lathe.
13"x6' Barnes, screw cutting.
14"x4' Lodge & Shipley.
24"x14' New Haven, power cross feed, steady rest.
28"x14' Pond lathe.
12" Foster-Kimball turret lathe.
21" Gisholt type H. turret lathe.
24" American turret lathe.
24" Gisholt turret, taper attachment.
13-16" 1", 1 1/2", 1 3/4" and 2" Bardons & Oliver turret lathes.
11" F. E. Wells speed lathe.
60" Niles pulley lathe.
7"x84" Lo-Swing, standard equip.

MISCELLANEOUS.

Bolt cutter, No. 2 National-Acme.
Cylinder boring machine, 37" swing.
Drill presses, gang, Rockford, 1 1/2" capacity.
Drill, 10-spindle Pratt & Whitney, bored for 15 spindles.
Drill, multiple, 14-spindle Baush.
Grinder, plain, 12"x48" modern, self contained.
Grinding and buffing machines, floor type, 2 h. p., d. c.
Hack saw, power, 6" Acme.
Miller, universal, No. 3 Cincinnati.
Miller, No. 2 Beaman & Smith, planer type.
Miller, No. 4 Beaman & Smith, planer type.
Radial drills, Scotch, direct connect.
Riveters, elect. bench and portable.
Sheet metal cutter, No. 0 Gray.
Sheet metal cutter, No. 1 Gray.
Tapping devices, Jarvis.
Thread milling mches., 4" automatic.

Electric tools for all purposes, 1-12 h. p. and up.

SECOND-HAND MACHINERY

FOR SALE BY

C. M. Thompson Co.,

35 S. Clinton St., Chicago

NEW MACHINES AND EQUIPMENT.

Chucks and face plates.

Hack saws.

Lathes, 14", 16" and 18".

Lathe millers, convert lathes into millers.

USED MACHINES.

Drill presses, various sizes.

Grinder, cylinder, No. 60 Heald.

Grinder, surface, No. 2 Saxon.

Lathe, 22"x12'.

Lathe, 36"x14'.

Lathe, 36"x22'.

Lathe, J. & L. turret, 2" geared hd.

Miller, No. 3 Cincinnati plain.

Miller, 48" Colburn vertical, 2 hds.

Planer, 36"x12' open side.

FOR SALE BY

Herman L. Winterer,

908-910 Beach St., Philadelphia, Pa.

LATHES.

38"x14' Fifeild.

31"x16' Fifeild.

29"x18'6" Schumacher & Boye.

26"x10' Pittsburgh, d. b. g.

22"x10' Johnson.

21"x28' Le Blond dbl. combination.

21"x14' Blaisdell, b. g.

21"x10' Lodge & Davis, c. r.

20"x 8' Flather, c. r.

20"x 8' Putnam.

20"x 8' Perkins.

19"x10' Fitchburg, b. g., (2).

18"x12' New Haven, b. g.

18"x10' Davis.

18"x 6' Lodge & Davis.

TURRET LATHES.

7"x14" Potter & J., semi-automatic.

3"x28" Lodge & S., chucking.

27" chucking.

MISCELLANEOUS.

Boring mill, hor., 48" Beaman & S.

Cold saw, 20" Newton.

Drill presses, all sizes.

Hydraulic forcing press, 135 ton.

Keyseater, No. 2 Davis.

Milling mche., univ., No. 1 B. & S.

Milling machine, universal, No. 1 Cincinnati.

Milling machine vert., No. 3 Becker Brainard.

Planers, 20 to 24" with 6 & 8' beds, (6).

Planer, 36"x36"x9', with four heads.

Roll grinder, 10"x36".

Shaper, 24" Lodge & Davis.

Shapers, 20" Gould & Eberhardt, (2).

Large assortment of Boilermakers' and General Machinery.

Send for complete list.

FOR SALE BY

Homer Strong,

210 State St., Rochester, N. Y.

Branch Offices: Syracuse, Buffalo, Albany.

Machine Tools in stock for immediate delivery.

BORING MILLS.

42" Gisholt, 2 swivel heads.

30" Builard, 1 turret head.

RADIAL DRILLS.

34' Morris (like new).

PLANERS.

54"x42"x16' Gray, 3 heads.

36"x36"x 9' Gray, 2 heads.

25"x25"x 6' Sellers, single head.

22"x22"x 5' Hendey, 1 head.

GEAR CUTTERS.

No. 1 Cincinnati spur gear cutter,

10x26, like new.

Whiton 30" spur and bevel, like new.

MILLING MACHINES.

No. 3 Cincinnati plain.

No. 14 Hendy miller.

No. 2 Brown & Sharpe universal miller.

GRINDERS.

No. 1 Cincinnati tool and cutter grinders, (2).

New and Used Machine Tools in stock for immediate delivery.

We carry a very large stock in our Rochester warehouse, ready for shipment at once. Stock includes both new and used lathes, shapers, milling machines, screw machines, grinders, etc., etc. We believe we can serve you to your advantage.

SECOND-HAND MACHINERY

FOR SALE BY

Peninsular Machinery Co.,

Countershaft, 115-16" with 18x5 t. & l.
Drill, 10" Hoefler, disc.
Drill, 14" single spindle sensitive.
Drill, 12" Barr sensitive.
Drilling head, 2-spindle, 3" to 8".
Flexible shaft, with c. s., Stow.
Forming roll, 14 ga. 48" long.
Grinder, emery, No. 3 Blount.
Grinder, cutter, No. 1 Garvin.
Grinder, cutter and tool, LeBlond.
Grinder, twist drill, New Yankee.

110 Beaubien St., Detroit, Mich.

Lathe, 14x5 LeBlond, rapid prod.
Lathe, 14x6 LeBlond, engine, c. r.
Lathe, 14x8 LeBlond, engine, c. r.
Lathe, 17x10 LeBlond, automobile.
Miller, hand, No. 1 Whitney type.
Miller, No. 1 Van Norman, hand.
Miller, No. 1 U. S., hand.
Screw machine, plain, No. 0 Foster.
Screw machine, plain, No. 3 Foster.
Screw machine, grd., No. 3 Foster.
Screw machine, grd., No. 5 Foster.

FOR SALE BY

Clark Machinery Co.,

Blower, No. 8 Buffalo Forge Co.
Blower, No. 1 Root, positive press.
Centering machine, No. 1 P. & W.
Drill press, single spindle sensitive.
Drill press, sgl. spdl. ball bearing.
Drill press, 4-spindle 20" Barnes automatic, all spindles power feed.
Drill press, 4-spindle, power feed.
Drill press, Baker Bros. heavy.
Grinder, No. 3 Oesterlein univ., new.
Lathe, 15"x8" Von Wyck.
Lathe, 14"x6" Flather, c. r. & taper.

1302 Ontario Ave., Cleveland, O.

Lathe, 10"x4" Rockford.
Miller, double end valve.
Miller, vertical, table 22"x54".
Millers, Garvin, Lincoln type, (2).
Millers, Garvin hand millers, (2).
Miller, No. 32 Kempsmith.
Planer, 24"x34"x6" Pond.
Plating dynamos, 300, 450 and 1200 amp., 5 volt.
Screw machine, No. 4 Wood.
Shaper, 15" Hendey.
Turret lathes, 24" J. & L. gd. hd., (2).

FOR SALE BY

The Canton Machine Shop,

Belt polishing machine.
Buffing lathe.
Die grinder.
Drill, 20" back geared.
Drill, 25", s. h., b. g.
Drill, 30", s. h., b. g.
Drill, 36", s. h., b. g.
Emery grinders, (3).
Lathe, 12"x5" Barnes.
Lathe, 16"x6", plain.
Lathe, 18"x8" Mueller.
Lathe, 20"x12" P. & W., t. a.

320 Rex Ave., Canton, Ohio

Lathe, 24"x10", 5" raise block.
Lathe, 30"x12" Porter.
Milling machine, No. 5 Brainard.
Pipe machine, No. 7 Jarecki.
Pipe machine, No. 11 Jarecki.
Planer, 26"x26"x6".
Planer, 26"x26"x12", 2 heads.
Planer, 36"x36"x14" Powell.
Punch press, No. 5 Farrell.
Radial drill, 3" Dreses.
Saw, power.
Shaper, 16" Ohio.

FOR SALE BY

G. L. Bennett Machinery Co., Inc., 30 Church St., New York City

Bolt cutter, 14" Acme, with dies.
Bolt header, hex. and square heads, 8" Pawtucket.
Boring machine, horizontal, Newburg, 4" bar, 72" feed.
Die head, 1" style D, Geometric.
Engine lathe, 18"x10" Flather, quick change gear, chuck.
Engine lathes, 18"x8" Davis, double b. g., 3-step cone.
Engine lathe, 26"x16" Fifield, blocks to 36".
Engine lathe, 40"x10" New Haven, light pattern.
Lathe, 22"x26" Union Iron Works, triple geared.
Milling machine, vertical, No. 2 Hillis & Jones, rev. table.
Planer, 30"x30"x8" Pease, 2 heads, one on the side.
Screw machine, No. 23 Garvin, 1 5-16" w. f. capacity.
Shear, bevel plate, Thompson.

ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

FOR QUICK SHIPMENT

At Chicago—The Great Machinery Center

TURRET MACHINES,—Latest Models.

- 25—21¹ Gisholts, 3½" hole, 2-step, 5" belt.
- 20—21¹ Gisholts, 3½" hole, motor arrangement.
- 13—24¹ Gisholts, 4¼" hole, 3-step, 4" belt.
- 38—24¹ Gisholts, 6" hole, 2-step, 6" belt.
- 41—24¹ Gisholts, 6" hole, motor arrangement.
- 2—2¼"x26¹ Greenlee Flat Turrets.
- 2—2½"x26¹ Pratt & Whitney geared head turrets.
- 4—3-A Warner & Swasey (bar machines).

ENGINE LATHES,—Latest Models.

- 24—22"x 8' Hamilton, d. b. g., c. r., semi-q. c.
- 5—22"x 8' Hamilton, d. b. g., turret tool post.
- 4—22"x 8' Davenport, d. b. g., turret tool post.
- 7—22"x10' Hamilton, d. b. g., c. r., semi-q. c. g.
- 2—22"x10' Hamilton, d. b. g., turret tool post, semi-q. c. g.
- 20—22"x10' Davis, d. b. g., c. r., q. c. g.
- 8—24"x10' Lodge & Shipley, d. b. g., c. r., q. c. g.
- 8—24"x10' Lodge & Shipley, selective geared head, c. r., q. c. g.
- 11—26"x10' American, d. b. g., c. r., and carriage turret, q. c. g.
- 2—26"x10' American, d. b. g., carriage turret.
- 19—26"x12' Putnam, carriage turret, semi-q. c.
- 9—26"x12' Putnam, c. r., semi-q. c.
- 2—26"x12' Wickes, d. b. g., c. r. semi-q. c. g.
- 10—28"x10' Niles-Bement-Pond, d. b. g., q. c. g.
- 4—28"x14' Lodge & S., select grd. hd., motor dr., c. r., tur. and taper.
- 3—30"x16' Lodge & Shipley, d. b. g., c. r., turret and taper.
- 10—40"x18' Pittsburgh, triple geared, q. c. g.

VERTICAL BORING MCHES.

- 1—30" swing Baush.
- 1—32" swing Rogers.
- 2—34" swing Colburn.
- 1—42" Colburn.

PRESSES.

- 1—No. 30 Perkins Inclinal.
- 1—No. 5 Niagara Inclinal.
- 1—No. 5 Consolidated Inclinal.
- 1—No. 20-U Ryerson Punch.
- 1—Trimming Press.
- 3—No. 734 Niagara Trim. Presses.
- 1—No. 234-B Niagara-Toggle Press.
- 1—Long & Allstatter Grd. Punch.
- 1—No. 17 Williams & White Double
* End Punch.

MILLING MACHINES.

- 2—No. 5 Brainard.
- 1—No. 3 Brainard plain.
- 1—No. 20 Oesterlein Universal.
- 1—No. 14 Brown & Sharpe univ.
- 1—No. 25 Becker. plain.
- 1—No. 2 Cincinnati universal.
- 1—No. 5 Schuchardt & Schutte, pl.
- 1—No. 3 Hendey. plain.
- 4—No. 2 Pratt & Whitney Lincoln.
- 1—60"x48"x8' Ingersoll. Slab.
- 1—Beaman & Smith, 2 vert. heads,
1-hor. cross bor. hd.
- 1—No. 2 Beaman & Smith, Combi-
nation Horizontal & Vertical.

Write for Our Green List describing these and many others

HILL, CLARKE & CO. OF CHICAGO
625 W. WASHINGTON BLVD., CHICAGO, ILL.

MILLING MACHINES

No. 2 Van Norman Duplex.
No. 7 Becker, Lincoln type.
Whitney Hand Miller.
Hendey Oscillating.

No. 1½ LeBlond Universal.
Vertical Attachment for
Kemp Smith Miller.

GRINDERS

Cincinnati No. 2 Universal
Tool and Cutter.
2 12"x42" Landis Plain.

Automatic Grinder for cold
saws up to 25" diam.

MISCELLANEOUS

Drill, 4-sp., with pwr. fd., 15".
Drill, ball-bearing sensitive.
Drop Hammer, 50 lb.
Gear Cutter, 36" spur and
bevel.
Gear Cutter, No. 3 B. & S. auto.
Foundry Blowers, small.
Lathe, 42"x14' engine lathe.
Lathe, Screw-cutting Precision
Lathe, Lo-Swing.

Lathe Taper Attachment.
Oil separator, small.
Pinion Cutter, 5" cap.
Planer, 16"x16"x36" P. & W.
Press, No. 4 Stiles, with 900-lb.
fly-wheel.
Screw Machine, 1¼" Cleve-
land Automatic.
Suspension drill.
Turret lathe, 2¼" hole.

And many others

T. Crowther & Company, Inc.
170 Oliver Street, Boston, Mass.

A CHAIN

The advertisers in the Tool List pay Hitchcock.
He sends you the Tool List free. You buy the
articles advertised. The chain is complete.

BUT—

—suppose the advertisers do not know that you
saw it in the Tool List—where does Hitchcock
come in? When writing to advertisers, won't
you kindly give Hitchcock credit?

Used Machine Tools

- 16—21"x8'2" Roulsted Engine Lathes.
- 39—21"x8'2" Roulsted Turret Lathes.
- 2—26"x11' Douglass Engine Lathes.
- 3—18"x 8' Reed - Prentice Turret Lathes.
- 2—26"x8'6" Dodge Turret Lathes.
- 10—16"x8' Simplex Turret Lathes.
- 4—24"x8' Flather Turret Lathes.
- 6—24"x7' Allis - Chalmers Cutting-Off Machines.
- 6—Knowlton Cutting-Off Machines, 20" Saw.
- 1—24" Grant Stamping Machine.
- 1—Dwight Slate Marking Machine.
- 2—West Tire Setters.
- 1—300-ton Hydraulic Press, complete.
- 1—Machine for spraying varnish in shells.
- 2—No. 50 Gardner Grinders.
- 45—3¾" Murchey Collapsible Taps.
- 1—Mitts & Merrill Keyseater.

**Purchasing Agent,
Mead - Morrison Manufacturing Co.,
East Boston, Mass.**

These Tools Are the Biggest and Best Available

VERTICAL BORING MILLS

- 14' Standard, 2 swivel heads, extra milling spindle.
- 84" Niles, 2 swivel heads.
- 74" Bickford, 2 swivel heads.
- 62" Bullard, 2 swivel heads.
- 54" Colburn, 2 swivel heads.
- 50" Bridgeport Bullard, 2 swivel heads.
- 48" Colburn, 2 swivel heads.
- 44" Colburn, 2 swivel heads.
- Two (2) 42" Colburn, 1 swivel hd.
- 36" Bridgeport, 2 swivel heads.

PLANERS

- 96"x96"x16' Betts, 4 heads.
- 54"x54"x24' Sellers, 3 heads.
- 54"x54"x15' Sellers, 2 heads.
- 40"x40"x14' New Haven, sgle. hd.
- 38"x14' Detrick & Harvey, open side, 2 heads.
- 30"x30"x10' Pease, single head.
- 30"x30"x10' Ohio, 2 heads.
- 26"x26"x8' Gray, single head.
- 26"x26"x6' Gray, single head.

RADIAL DRILLS

- 72" Cincinnati Bickford, plain, latest type, single pulley drive.
- 66" American Tool Works Full Universal, tapping attach.
- 60" Pond Ridgeway, motor drive.
- 60" Dreses Full Univ., motor dr.
- 54" Dreses, plain.
- 48" Gang, with tapping attach.

SLAB MILLERS

- 36"x36"x8' Ingersoll, 2 vertical spindles.

- 24"x6' Beaman & Smith, open s.
- 24"x48" Newton.
- 24"x84" Becker Brainard.

POWER PRESSES

- No. 35 Arch Press, single acting, 24" between housing 2½" stroke.
- No. 81 Ferracut Double Crank, geared, bolster plate, 22"x30".
- No. 3 Perkins Double Action Toggle Press.
- 54" Ferracut.
- No. P-G-5 Ferracut.
- 350 Ton Ferracut Knuckle Joint Press.
- 150 Ton Ferracut Knuckle Joint Press.

POWER HAMMERS

- 800 lb. Lane, double frame, steam driven.
- 600 lb. Ferris & Miles.
- 500 lb. Bell, single frame, steam.
- 500 lb. Bradley Upright.
- No. 4 Nazel Pneumatic, motor dr.
- Three (3) 40 lb. Bradley Helve.
- Two (2) 25 lb. Bradley Helve.

UPRIGHT DRILLS

- Two (2) No. 310 Baker Bros. high speed, single pulley drive.
- No. 25 Foote Burt (36"), high speed, single pulley drive.
- 26" Barnes, sliding head, power feed, back geared.
- 25" Hamilton, back geared, sliding head, power feed, tapping att.
- 24" Gould & Eberhardt, back geared, sliding head, power fd.

August Catalogue Just Published—Write for a Copy

We specialize in Big Machines—Have you any to Sell or Trade?

Graves Machinery Exchange

Offices:

50 Church St., N. Y. City, Suite 482

Warehouses and R. R. Siding:

408 Claremont Ave., Jersey City, N. J.

Phone Cortlandt 665

Immediate Delivery

Machine Tools

- 1—52"x48"x15' **Betts** Spur Geared Planer, 2 heads on rail.
- 1—36" **Bement** Car Wheel Borer, with power hoist.
- 1—20"x72" **Brown & Sharpe** No. 5 Universal Grinder.
- 1—26"x25' **Pond** Engine Lathe, takes 20' between centers, all regular equipment, screw cutting, equipped for shaft turning, good condition.
- 1—20"x17' **J. & L.** Engine Lathe, takes 13' between centers, has raising blocks to increase swing to 30", full equipment including set transposing gears for metric threads. Rebuilt and in A-1 condition. A bargain for quick sale.
- 1—30"x16' **Prentice** Geared Head Single Pulley Drive Engine Lathe, compound rest, good as new.
- 1—5' **Reed** **Prentice** Plain Radial Drill, gear box drive, good as new.
- 8—No. 1 **Racine** High Speed Hack Sawing Machines.

Cranes and Hoists

- 1—10 ton **Shaw** 3 Motor Electric Traveling Crane, 76' 5" span, cab control, 220 V., D. C.
- 5—5 ton **Reading** Geared Single I-beam Hand Traveling Cranes, 18' span, complete with 5 ton **Yale & Towne** Triplex Hoist.
- 2—5 ton **Yale & Towne** Triplex Chain Hoists, good as new.
- 2—3000 lb. **Harrington** Chain Hoists, complete with trolley.
- 1—2 ton **Shepard** Electric Hoist with trolley, 220 V., 3 phase, 60 cycle. First class condition.

Hydraulic Equipment.

- Snow** High Pressure Pump, size 16"x2 $\frac{3}{8}$ "x12", steam driven, suitable for 1000-1500 lbs. pressure.
- Hydraulic Jib Cranes**, 3-5 ton Capacity, Mfg. by **Wm. H. Wood**, 38' radius, 7' lift, complete with trolley, control valves, etc.
- Hydraulic Traveling Crane**, Mfgd. by **Wm. H. Wood**, 22' 6" span, capacity 8 tons, lift 30', complete with heavy chain connections, floor control for trolley, bridge and hoist.

Miscellaneous.

- Underwriters Fire Pump**, "Barr", 14"x7 $\frac{1}{2}$ "x12", bronze bushed, capacity 500 gallons per min. Good as new.
- 1—**Smith** Concrete Mixer, steam engine driven, no boiler, capacity 1 yd., mounted on 4 wheel truck, good condition.
- 1—No. 60 **Oliver** Universal Saw Bench for pattern makers, A-1 condition.
- 1—**Clayton** Duplex Steam Driven Air Compressor, 300' at 50 to 100 lbs. pressure, complete with unloader and auto. governor, A-1 condition.

We are constantly adding to our list of equipment.
Tell us your needs as we may have it in stock.

D. M. Osborne Machinery Co.

American Trust Bldg., Cleveland, Ohio

Warehouse: West 9th & Front Sts.

For Sale

One 12x36 Cincinnati Plain Grinder complete with two work rests, one wheel and Valve Seat Grinding attachment and self contained counter.

One 16x60 Landis Plain Grinder complete with valve seat grinding attachment and crank grinding attachment.

One 10x20 Landis Universal Grinder.

One 3x36 Jones & Lamson all geared head Turret Lathe with full bar equipment.

One No. 5 Becker-Brainard Vertical Milling Machine.

Two No. 1½ Kearney & Trecker Vertical Milling Machines with standard equipment.

Two No. 5 American Can Plain Fly Wheel Presses.

One 20-in. Foote-Burt Heavy Duty Drill Press.

One 21-in. Niles-Bement-Pond Rigid Turret Lathe with four jaw chuck, all other equipment regularly furnished included, turret for turning, special tools and tool holders.

M. J. Walsh Mchy. Co., 141 Sycamore St., Milwaukee, Wis.

Two Pratt & Whitney Plain Cylindrical Grinders, capacity 8"x48", in excellent condition.

One Springfield Machine Tool Co. Cylindrical Grinder, cap. 12"x96".

One Brown & Sharpe Universal Grinder, capacity 12"x40".

One 8"x18" Modern Plain Grinder, new.

Two 6"x30" Modern Plain Grinder.

One Niles 37" Vertical Boring Mill, two heads on the cross rail.

One Baush Radial Drill, 6' arm, plain, cone driven.

One Diamond Machine Co. Roll Grinder, capacity 8"x26".

One No. 5 Becker Vertical Milling Machine, with power rotary att.

One No. 3 Cincinnati Plain Milling Machine.

One 36" Bickford Radial Drill, with tapping attachment.

One 26"x7" Niles Planer, parallel drive, one head.

One Wheeler Planer, 24"x24"x6', in excellent condition, one head.

One Whitcomb Crank Planer, used less than two years, in excellent condition.

One 24"x6' Whitcomb Planer, one head, new.

One Flather Gear Cutter, for spur gears only, capacity 8"x26".

We also carry a large line of Shapers, Turret Lathes, Hand Screw Machines, Engine Lathes, Upright Drills, etc.

Send us your inquiries

Factory & Mill Supply Co.

137 Oliver St., Boston, Mass.

Baird Again

1—No. 1 Cincinnati Universal Miller.

1—No. 2-B Brown & Sharpe Plain Miller.

1—No. 3½ Garvin Plain Miller.

1—6"x18" Landis Plain Self-contained Grinder.

1—8"x20" Fraser Universal Grinder.

1—No. 1 Wilmarth & Morman Universal Grinder.

Over 1,000 Machines in Stock

W. J. Baird Machinery Co.

54-56 Jefferson Ave., Detroit, Mich.

LATHES

No. 857—18"x8' Patent head L. & S. chucking lathe.
 No. 829—20"x10' single step, double back geared head, L. & S. Engine Lathe, with power feed turret on bed.

OTHER MACHINES

No. 477—24" Cincinnati Radial Drill with tapping attachment.
 No. 880—16"x6' Lodge & Shipley Plain Stud Lathe.
 Nos. 735 & 735-A—Two U. S. Portable Electric Grinders, 110 v., 2 h.p.
 No. 685—No. 1 Diamond Bench Grinder on Pedestal.
 No. 613—Dry Grinder for two 12" Wheels.
 No. 713—Herald Style "C" Drill Grinder.
 No. 659-95—Two 24" Rockford Wet Tool Grinders.
 No. 736—U. S. Portable Electric Grinder, 110 volt, $\frac{1}{2}$ h. p.
 No. 1337—Compton-Knowles Loom Works Broacher, 60" stroke.
 No. 661—Globe Tool Sharpener.
 No. 680—Safety Tool Grinder, 4"x32" Emery Wheels.
 No. 662—Safety Wet Tool Grinder, 4"x30" Wheels.
 No. 1379—Universal Swivel Table for Radial Drill.
 No. 1336—No. 00 Sturtevant Blower.
 No. 2531—Sturtevant Blower, 24" outlet.
 1—15 h. p. Gas Engine, 215 r. p. m.
 No. 2006—Triplex Sgl. Acting Vert. Deane Pump, 4 $\frac{1}{2}$ " bore, 3 $\frac{1}{2}$ " st.

USED MOTORS

No. 969—1 $\frac{1}{2}$ H. P. Bullock, 220 volt. D. C., 600 R. P. M.
 No. 963—10 H. P. Triumph, 220 volt, D. C., 200-600 R. P. M.

DELIVERY NOW

The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio,
 U. S. A.

Desirable Tools

18"x96" No. 28 Brown & Sharpe
 Plain Grinder.

Pratt & Whitney Surface Grinder.

Three 2 $\frac{1}{4}$ " Gridley Single Spindle
 Automatics.

4 $\frac{1}{2}$ " Williams Double Tool Cut-
 ting Off Machine.

No. 1 $\frac{1}{2}$ Garvin Universal Milling
 Machine.

Three new No. 2 Surface Grinders.

Lynd-Farquhar Company
 Boston, Massachusetts

Second-Hand Machinery

Drilling Machines.

Four spindle Barr sensitive.

20" three-spindle Hoefler gang, power feed.

20" Barnes four-spdl. gang, power feed, one back gear, one tapping.

20" Prentice, lever feed.

34" Barnes sliding head, back gears, power feed.

Four spindle Baker Bros. No. 413, heavy gang.

Gear Cutters.

16" Brown & Sharpe, spur and bevel.

18"x4" Brainerd, spur.

No. 3, 26" Brown & Sharpe, spur, latest model, good as new.

Engine Lathes.

14"x6' Blaisdell, rise and fall rest.

16"x8' Bradford, compound rest, hollow spindle.

20"x8' Blaisdell, plain rest.

21"x10' Bradford, compound rest, cabinet legs.

24"x6' Plamondon back geared pulley lathe.

24"x12' Reed, compound rest, four step cone.

36"x8' Putnam pulley turning lathe, double plain rest.

Turret Lathes and Screw Machines.

3 1/2"x36" Acme flat turret lathe with bar equipment.

5/8" Gates hand screw machine.

1 1/2" Gray turret lathe.

Small Cleveland automatic.

3/4" Hartford automatic.

1 1/8" Hartford automatic.

Planers.

34"x34"x8' Betts, one head.

36"x36"x12' Pond heavy pattern, two heads, good as new.

Shapers.

34" Lodge & Davis.

10" Fitchburg, traveling head.

16" Baker Brothers, draw stroke, NEW.

Miscellaneous.

Boring machine, horizontal, 2-1/2" bar Bement.

Cutting-off machine, 2-1/2" Betts.

Grinder, 10"x30" Landis.

Grinder, No. 300 Safety Emery Wheel Co. plow jointer.

Milling machine, No. 2 American, plain, excellent condition.

Punch, No. 12 Lennox, 12" throat.

Saw, 12" Burke cold saw.

Saw, Millers Falls hack saw.

Marshall & Huschart Machinery Co.

17 S. Jefferson St.

Chicago, Ill.

915 Chemical Building

St. Louis, Mo.

**The Largest Stock of
High Grade Machine Tools
Between Boston and New York**

For the benefit of the New England trade, we carry on our floors in Hartford a fine selection of new machine tools of reliable makes, as well as used machines in fine operating condition.

Located right in the heart of this important territory, we can give our patrons in this section a prompt personal service which they cannot secure from more distant markets.

New England users of tools are invited to try the P. & S. service. In other words, put it up to us.

What do you need now?

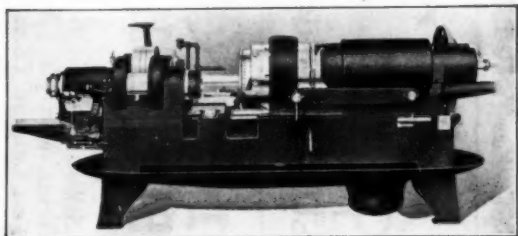
Purinton & Smith, Hartford, Conn.

Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

It's A Cleveland

**4 $\frac{1}{4}$ " Model "A"
Automatic Screw Machine**



**We have Six of them
AS GOOD AS NEW**

HILL, CLARKE & CO., Inc.

The Machinery Merchants

**BOSTON, MASS.
156 Oliver St.**

**NEW YORK CITY
136 Cedar St.**

"New York's Greatest Clearing House—New York's Lowest Prices—J. J. McCabe"

LARGE HIGH GRADE TOOLS

FOR IMMEDIATE SHIPMENT

**10-ft.
PLANER**

"Betts Machine Co.'s" Planes, 10 ft. in width, 10 ft. in height, 23 ft. in length, with four (4) heads, two on Crossrail and one on each Housing, All Steel driving Gears, Countershaft and Equipment.

**10-ft.
BORING MILL**

"Wm. Sellers & Co.'s" 120-inch Swing, with two (2) Heads on Crossrail, Countershaft and full Equipment.

**102-in.
LATHE**

"Bement" Triple-gearred 102-inch Swing, Bed 30 ft. in length, Compound-rest, Power Cross feed, Countershaft and full Equipment.

40-in. TURRET LATHE

Semi-automatic 40" Swing,
6'9" between Chuck and
Turret, Hollow Spindle
3 3/4" hole, Turret 48" Diam.,
carries 5 Tools on main turret
and 4 tools on supplementary
Turret. Weight 22,500 lbs.

NEW McCABE HEAVY DUTY LATHES—All
Steel Quick-Change Gear Mechanism—

16-in. Swing, 6 and 8-ft. beds.
18-in. Swing, 8, 10 and 12-ft. beds.
21-in. Swing, 10 and 12-ft. beds.
26-in. Swing, 14 and 18-ft. beds.
24-in. Swing, 12, 14, 16 and 18-ft. beds, semi-quick-change.

NEW LATEST PATTERN HIGH-DUTY SHAPERS

12, 16, 20 and 25-in. stroke.
28, and 32-in. stroke, gear-box drive.

NEW LATEST PATTERN RADIAL DRILLS

2 1/2, 3 1/2 and 4-ft. Arms, Speed-box and Tapping att.

USED LATHES

16 to 52-in' Swing—various lengths.

USED PLANERS

24-in. to 10-ft. in width—Standard makes.

USED PLANNER TYPE MILLING MACHINES

45-in. x 14-ft. "Newton" Horizontal spindle.
24-in. x 12 and 8-ft. "Bement-Miles" Horiz. spindle.

USED RADIAL DRILLS

2 1/2 and 5-ft. Arms, Plain and Universal.

MULTIPLE DRILL

18-spindle, Speed-box, "Baush."

STEAM HAMMER

300 lbs. to 2,500 lbs., Single-frame.

SLOTTERS

12 and 30-in. strokes.

GEAR SHAPER

36-in. "Fellows" with Cutters.

TURRET LATHES

Gisholt, Potter & Johnson and Jones & Lamson.

AXLE LATHES

Single and Double-end, Bridgeport, Bement.

J. J. McCABE—149 Broadway—NEW YORK

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"New Britain" Bench Legs

Economical—Light Weight—Unbreakable

P
R
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S
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D



S
T
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L

They are built up of formed sections of pressed steel, electrically welded. There is not a rivet in them.

They combine light weight with great stiffness, and are not subject to breakage like legs made of cast iron. In fact, they are practically everlasting.

They make a stiff bench without wall support, which can be easily moved or rearranged without damage.

The patented longitudinal stringer feature also adds greatly to the rigidity of the benching, preventing deflection and end sway. It also permits the legs to be set considerably further apart, saving both labor and legs in construction.

In a word, "New Britain" All-Steel Bench Legs insure better benching at less cost.

*Bulletin No. 1200-A tells more
Glad to mail it upon request*

The New Britain Machine Company

**"Shop Furniture
Originators"**



**New Britain,
Conn. U.S.A.**

